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# THE *FIRST* BRIGHT QUASAR SURVEY. II. 60 NIGHTS AND 1200 SPECTRA LATER

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## ABSTRACT

We have used the VLA FIRST survey and the APM catalog of the POSS-I plates as the basis for constructing a new radio-selected sample of optically bright quasars. This is the first radio-selected sample that is competitive in size with current optically selected quasar surveys. Using only two basic criteria, radio-optical positional coincidence and optical morphology, quasars and BL Lacs can be identified with 60% selection efficiency; the efficiency increases to 70% for objects fainter than magnitude 17. We show that a more sophisticated selection scheme can predict with better than 85% reliability which candidates will turn out to be quasars.

This paper presents the second installment of the FIRST Bright Quasar Survey with a catalog of 636 quasars distributed over 2682 square degrees. The quasar sample is characterized and all spectra are displayed. The FBQS detects both radio-loud and radio-quiet quasars out to a redshift $z > 3$. We find a large population of objects of intermediate radio-loudness; there is no evidence in our sample for a bimodal distribution of radio characteristics. The sample includes $\sim 29$ broad absorption line quasars, both high and low ionization, and a number of new objects with remarkable optical spectra.

*Subject headings:* surveys — quasars: general — galaxies: active — BL Lacertae objects: general — galaxies: starburst — radio continuum: galaxies

## 1. INTRODUCTION

The VLA FIRST Bright Quasar survey (FBQS) aims to define a sample of quasars that bridges the gap between traditional radio-loud and radio-quiet objects. Given the limiting radio flux density of 1 mJy at 1400 MHz (Becker, White, & Helfand 1995; hereafter BWH95), many of the optically bright quasars discovered by the FIRST survey fall near the traditional division between radio-loud and radio-quiet objects. Previous radio-selected quasar surveys have not reached deep enough to probe this regime. In a pilot study for the FBQS, Gregg et al. (1996; hereafter Paper I) developed criteria to create a candidate list based on matching the FIRST survey to the Cambridge Automated Plate Measuring Machine (APM) catalog of POSS-I objects (McMahon & Irwin 1992). Applying these criteria to the catalog of FIRST sources from the initial 2682 square degrees surveyed in the north Galactic cap (White, Becker, Helfand & Gregg 1997; hereafter WBHG97), a candidate list of 1238 objects with extinction-corrected, recalibrated magnitudes brighter than 17.8 mag on the POSS-I $E$ plates has been assembled. We have now collected optical spectra for more than 90% of the candidates and have identified 467 new quasars in addition to the 169 that were previously known in this region.

Quasars were originally discovered through their radio emission, but only $\sim 10\%$ of them are radio-loud[12]. There are now several large surveys for optically selected quasars that are under way or complete: e.g., the Palomar-Green survey (Green, Schmidt, & Liebert 1986), the Large Bright Quasar Survey (Hewett, Foltz & Chaffee 1995; hereafter LBQS), the Edinburgh Quasar Survey (Goldschmidt et al. 1992), and the Hamburg/ESO survey (Wisotzki et al. 1996, Hagen, Engels & Reimers 1999). The FBQS survey will produce a sample of radio-selected quasar spectra that is comparable in size and quality to the largest existing optical surveys. In fact, the catalog published in this paper already contains more $z > 0.2$ quasars brighter than $B = 18$ than does the LBQS (340 for the FBQS vs. 319 for the LBQS) because even though radio quasars are rarer, the FBQS covers a substantially larger sky area than the LBQS (2682 deg$^2$ vs. 454 deg$^2$ for the LBQS.)

In this paper we present this new radio-selected sample of quasars. We discuss the criteria used to define the FBQS sample, as well as a new technique that could be used to make even more efficient samples (§2). We describe the optical spectroscopy that was carried out (§3), present the results of the spectroscopy including spectroscopic classifications for all ob-

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[12]We define radio-loud quasars as those with a radio-loudness parameter $R^*$ greater than 10 (Stocke et al. 1992; see §2.5 for further discussion.)

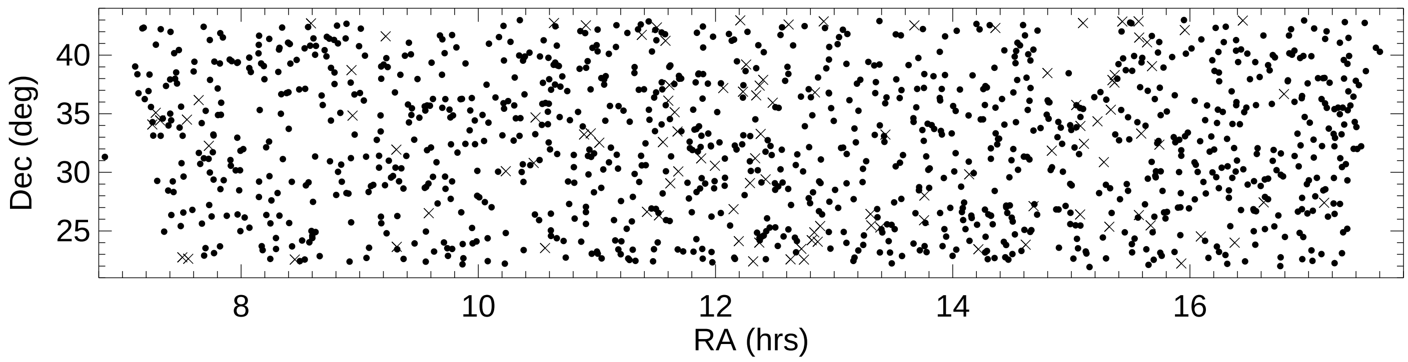



FIG. 1.— Distribution of the 1238 FBQS candidates on the sky. Dots are the 1130 objects identified through spectra; x's mark the 108 objects without spectra.

jects (§4), and briefly discuss the results (§5). Detailed analysis of the FBQS sample, including the spectral properties of the new quasars, will be deferred to other papers; here our focus is on defining the sample and on presenting the basic data upon which subsequent work will be based.

## 2. THE SAMPLE

The primary catalog for the FBQS is the VLA FIRST survey which, as of July 1999, covers $\sim$ 6000 deg$^2$ (BWH95, WBHG97; see also the FIRST home page at `http://sundog.stsci.edu`). However, at this time the vast majority of optical spectroscopy has been restricted to objects drawn from the smaller area covered by the 1997Apr24 version of the FIRST northern Galactic cap catalog. For the purposes of this paper, we will restrict the discussion to candidates in the north Galactic cap between declinations of +22 and +43 degrees, with Right Ascensions ranging from approximately $\sim$ 7 to $\sim$ 17 hours; the area covered is 2682 square degrees. The spatial distribution of the candidates included in the paper is shown in Figure 1. The selection criteria for membership in the sample are:

- The radio and optical positions must coincide to better than 1.2 arcsec.
- The recalibrated, extinction-corrected optical magnitude on the POSS-I red plate $E \leq 17.8$. (The $O$ magnitude roughly corresponds to $B$ and $E$ to $R$ or to Gunn $r$.)
- The optical morphology of the object must be stellar on at least one of the two POSS-I plates.
- The POSS-I color must be bluer than $O-E=2$.

We avoid as far as possible any restriction on the radio properties of sources in the sample, other than requiring them to be in the FIRST catalog, which has its own selection effects. These criteria were based on the analysis presented in Paper I and have been found to be quite liberal, excluding very few potential quasars. The criteria are discussed in detail below.

### 2.1. *Radio-Optical Positional Coincidence*

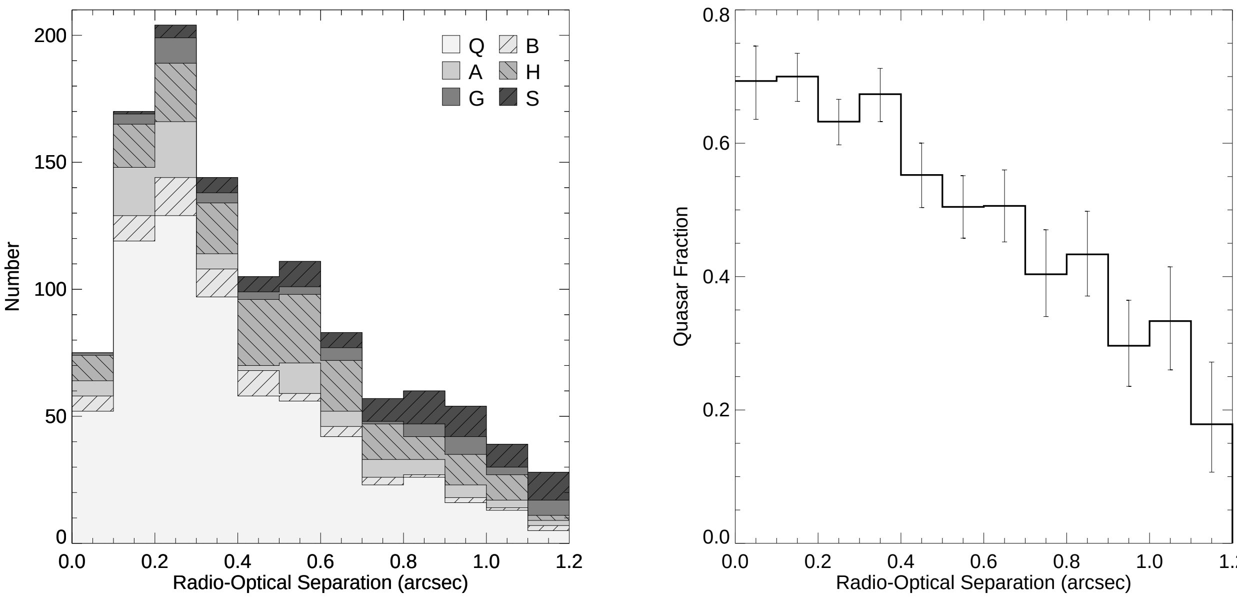
We require that the radio and optical sources be separated by no more than 1.2 arcsec. A discussion of the astrometric accuracy that allows for such a tight constraint is found in WBHG97. The FIRST radio positions have been used to correct the APM positions for POSS-I plate distortions before comparing the radio and optical positions (McMahon et al. 1999). In general, the required close agreement in position excludes quasars that do not have at least a weak core radio component, so the candidate list is biased against completely lobe-dominated radio sources. The distribution of radio-optical separations for confirmed quasars is strongly peaked and falls rapidly beyond 0.5 arcsec (see Fig. 2a). Only 5 (0.8%) of our 636 quasars have separations between 1.1 and 1.2 arcsec, even though that annulus contains 16% of the area searched. Nonetheless, this criterion certainly excludes some quasars that are detected by the FIRST survey. Figure 2(b) shows the fraction of optical candidates that are found to be quasars as a function of separation; it declines steadily from $\sim$ 80% near 0 arcsec to $\sim$ 20% at 1.2 arcsec. If we make the conservative assumption that the quasar fraction does not decline further, we estimate that there are $<10$ additional quasars with separations between 1.2 and 1.5 arcsec that are excluded from the sample by the separation criterion.

### 2.2. *E Magnitude*

The original candidate list was limited to optical counterparts that are brighter than 17.5 mag on the POSS-I $E$ plate as measured by the APM scans. In fact, the APM $E$ magnitude typically overestimates the actual brightness by $\sim 0.3\pm0.3$ mag, so the original candidate list went slightly deeper than intended and was not uniform over the survey area. In an attempt to improve the photometric accuracy and uniformity of the sample, the APM magnitudes were subsequently recalibrated plate-by-plate (McMahon et al. 1999) using magnitudes from the Minnesota Automated Plate Scanner POSS-I catalog (APS[13], Pennington et al. 1993), which are more uniform than the APM magnitudes because they were calibrated on a plate-by-plate basis, and a new limit of 17.8 in $E$ was used to redefine the complete sample. We preferred not simply to substitute the APS catalog for the APM because the APS sky coverage is incomplete in the FIRST region and because the APS catalog excludes objects detected on only one of the POSS-I plates, which dramatically reduces the fraction of FIRST sources that have optical identifications since most radio source counterparts are near the plate limit and so appear on only one plate. The latter consideration is not important for the FBQS, but is a disadvantage for most other optical projects.

After the APS recalibration, we find that the APM magnitudes are accurate to better than 0.2 magnitudes rms in both O and E (McMahon et al. 1999). This accuracy was determined

[13]The APS databases are supported by the National Science Foundation, the National Aeronautics and Space Administration, and the University of Minnesota, and are available at `http://aps.umn.edu/`.




(a) (b)

FIG. 2.— (a) Histogram of separations for FBQS candidates identified as quasars (Q), BL Lacs (B), narrow-line AGN (A), H II/star-forming galaxies (H), galaxies without emission lines (G), and stars (S). (b) Fraction of quasar identifications as a function of separation. Quasars are strongly concentrated toward small separations.

by comparing the magnitudes of objects appearing in the narrow overlap regions at the edges of the POSS-I plates; since the photometric errors are probably worst at the plate edges, for most objects the errors may be even smaller.

As a result of the E magnitude adjustments, the sample was augmented by approximately 100 candidate quasars. Furthermore, there are instances of sources in the APS catalog that are not detected on one or both plates in the APM catalog (the opposite also occurs.) The most common reason for such missing sources is that close objects are blended into a single merged entry. We added 26 such APS-supplement objects to our candidate list; these objects are noted in the comments. Finally, to improve the uniformity of the sample with Galactic latitude, an extinction correction was computed for each candidate object using the $E(B-V)$ map of Schlegel, Finkbeiner & Davis 1998 with $A(E) = 2.7\,E(B-V)$ and $A(O) = 4.4\,E(B-V)$ (estimated from the $E$ and $O$ bandpasses given in Minkowski & Abell 1963.) These corrections are usually quite small — the median values are $A(E) = 0.058$ and $A(O) = 0.094$ — but can be significant at the high and low RA edges of the survey (see Fig. 3). We keep all objects that satisfy $E \leq 17.8$ and the $O-E$ color cut described below using the extinction-corrected magnitudes; this adds an additional $\sim 90$ candidates to the sample.

The extinction-corrected magnitude distribution of identified candidates is shown in Figure 4(a) for various classifications. (The definitions adopted for these object classifications are given in §4; briefly, a "quasar" is any object with broad emission lines.) The efficiency of finding quasars is a strong function of magnitude. Figure 4(b) shows the fraction of candidate objects that are quasars as a function of $E$ magnitude. Less than 5% of the objects brighter than $E = 14$ mag are quasars (most such objects are brighter than $E = 13$ and so do not appear in Fig. 4); this grows to 70% for candidates fainter than $E = 17$ mag. Most of the brightest nonquasars are galaxies that the APM has misclassified as stellar.

The very steep increase in the number of quasars with increasing magnitude introduces a strong Malmquist bias into this sample (and other samples of bright quasars.) There is a large pool of quasars just below the magnitude threshold, so the sample is certain to include variable objects that happened to be unusually bright when the POSS-I plates were taken; it will also include quasars with measurement and/or calibration errors that made them look brighter than they really are. When analyzing properties of the sample, readers are cautioned to consider this bias. See our study of the variability of a subset of the FBQS quasars for further discussion of this issue (Helfand et al. 1999b).

### 2.3. *Optical Morphology*

Since we are searching for quasars, we require all candidates to be classified by the APM as stellar on at least one POSS-I plate. The APM star/galaxy separator is not infallible, however. Approximately 14% of the quasars found in the FBQS are classified as nonstellar on one of the two POSS-I plates. Since we admit Seyfert galaxies into our quasar sample, some of these nonstellar classifications may be correct. Fully 75% of the objects classified as stellar on both plates turned out to be quasars. In comparison, only 25% of the objects classified as stellar on only one plate proved to be quasars.

Nonetheless, it is likely that some quasars are being lost to the sample because they are being misclassified as galaxies on both plates. A match between the APM catalog and the Véron-Cetty & Véron 1998 quasar catalog found that 10% of the Véron quasars brighter than $\sim 17.8$ in $E$ were classified as galaxies on both POSS-I plates by the APM (Paper I). However, $\sim 40\%$ of such objects are identified as Seyfert galaxies in the Véron catalog, so that the APM galaxy classification is likely to be correct. The FBQS sample is certainly not complete for Seyfert galaxies due to the restriction to point-like optical sources. This morphology criterion similarly makes the FBQS

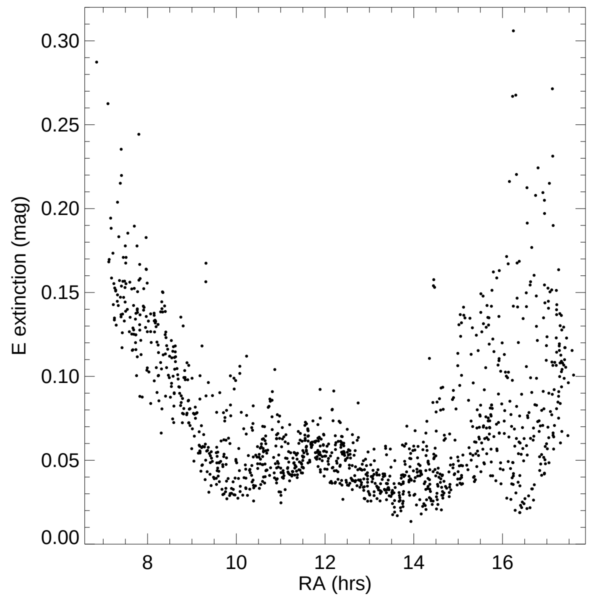



FIG. 3.— Extinction at $E$ as a function of Right Ascension for FBQS candidates. The $O$ extinction is 1.63 times larger. The extinction corrected magnitudes have been used for the color and magnitude cuts in defining the FBQS sample.

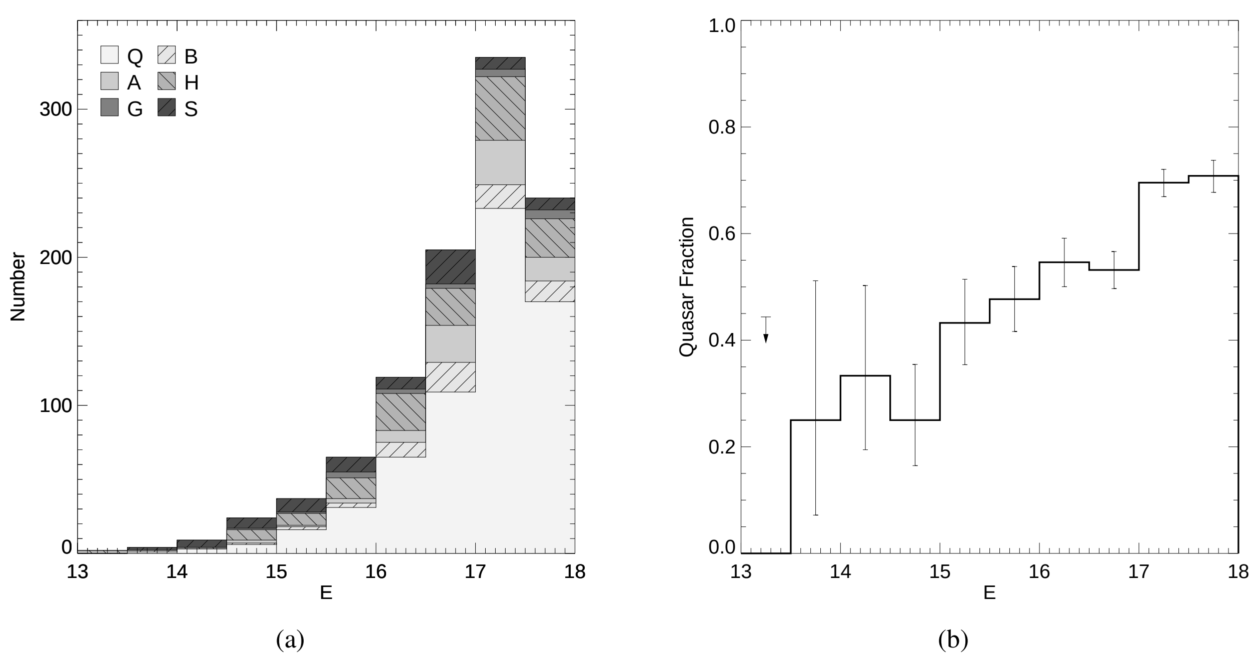



FIG. 4.— (a) Histogram of extinction-corrected $E$ (POSS-I red) magnitudes for FBQS candidates with identifications. Note that the 17.5–18.0 magnitude bin only includes objects between $17.5 < E < 17.8$. (b) Fraction of quasar identifications as function of $E$ magnitude.

sample somewhat incomplete at low redshifts ($z \lesssim 0.2$), where the quasar host galaxy may be bright enough to skew the APM classification.

Requiring a point-like optical morphology may also discriminate against another interesting class of quasar: gravitationally lensed (or binary) objects. Gravitational lenses with two roughly equally bright images separated by $\sim 2$ to $\sim 10$ arcseconds are likely to be recorded as a single non-stellar object in the APM catalog; they are also likely to have less accurate positions in both the radio and the optical due to their extent. Such wide lenses are probably best identified using higher-resolution images than can be obtained from photographic Schmidt surveys. However, most gravitationally lensed quasars have smaller separations than this and so will be included in our sample despite not being true point sources. In an imaging search for lenses among the FBQS sample (Schechter et al. 1998), we have so far found two lensed objects; both have component separations of $\sim 1$ arcsec or less and are unresolved by the APM, which classifies each as stellar on both plates. We have also identified one binary quasar (Brotherton et al. 1999) with a separation of 2.3 arcsec, which is similarly classified as stellar on both plates, although it is slightly too faint to be in the FBQS sample.

### 2.4. *Optical Color*

Lastly, we excluded FIRST sources with very red optical counterparts ($O-E > 2$) since in the pilot study no quasars were this red. At the risk of missing a few intrinsically red or high-redshift quasars, this cut substantially reduces the number of candidates to observe. A histogram of the colors of all the quasars identified to date (Fig. 5a) shows very few close to the color limit and a very low discovery efficiency near $O-E = 2$ (Fig. 5b). There are only 7 confirmed quasars with dereddened $O-E \geq 1.8$. Although we cannot exclude a large population of red quasars, there are very few quasars near our color boundary, whereas the non-quasar contamination of the candidate list has a strong dependence on color. Figure 5(a) also indicates the color distribution of the BL Lacs, AGN, H II/star-forming galaxies, and normal galaxies identified in our survey.

Our color cut does discriminate against one known class of red quasars: very high redshift quasars ($z \gtrsim 3.5$). Hook et al. 1995 describe the evolution of APM/POSS-I colors with redshift and show that when the Lyman forest absorption moves into the $O$ band, the $O-E$ color becomes dramatically redder. This trend is visible in a plot of $O-E$ versus $z$ for the FBQS quasars (Fig. 6), where the colors of $z > 3$ quasars are distinctly redder than those at lower redshifts. A prime goal of extending the FBQS sample to include redder objects would be to find high redshift quasars (e.g., Hook, Becker, McMahon, & White 1998), but in view of the contamination of the red objects in the APM catalog by galaxies, due mainly to the poor morphology discrimination feasible with the POSS-I plates, we decided it was best for the FBQS to postpone a red quasar search until we have higher quality optical images (e.g., from the Sloan Digital Sky Survey and other deeper, higher resolution CCD surveys.)

In any case, few if any high redshift quasars were missed as a result of our color cut. The limit at $O-E = 2$ is substantially redder than the typical unreddened quasar color ($O-E \sim 0.5$, Fig. 5), so it does allow for significant absorption in the $O$ band; and we do not expect to find many $z > 3.5$ quasars brighter than $E = 17.8$ mag simply because of the large ultraviolet luminosities required. If there is a closer population of quasars that is heavily reddened by either intrinsic or intervening dust absorption, the absorption at $E$ would have to be several magnitudes in order to produce a differential extinction of a magnitude or more in $O-E$. Consequently, such objects would also be too faint to be included in this bright sample.

### 2.5. *Radio Properties*

There are no cuts to the sample based on radio flux density or radio morphology (other than the unavoidable requirement that the radio source have at least a weak core component, as mentioned above.) However, the FIRST catalog itself introduces several minor selection effects (BWH95; WBHG97). The FIRST sensitivity limit is somewhat non-uniform on the sky, with small ($\sim 15\%$ peak-to-peak) variations due to the observing strategy and large variations due to decreased sensitivity in the vicinity of bright sources. The fraction of the survey area affected by sensitivity variations is small: 86% of the FBQS area has a $5\sigma$ flux density limit of $\leq 1$ mJy (the catalog has a hard limit at 1 mJy even when the images are slightly better than that), and 98% of the survey has a limit $< 1.25$ mJy. The FIRST coverage map (WBHG97; available through the FIRST web pages) gives the sensitivity as a function of position.

The FIRST survey detection limit applies to the peak flux density of sources rather than to the integrated flux density. Consequently, extended sources with total fluxes greater than 1 mJy may not appear in the catalog because their peaks fall below the detection threshold. For the objects selected in the FBQS, we expect the insensitivity of FIRST to extended sources to contribute less to the incompleteness than the requirement that FBQS quasars must have a nuclear radio component in order to meet the positional coincidence criterion. The latter, for example, makes the FBQS incomplete to the population of radio quasars that have extended, fossil radio lobes but no active nuclear emission (which must exist, though they are rare.)

The FBQS sample constitutes a significantly different population of quasars than has been seen in previous radio surveys. Figure 7 shows the distribution of radio flux densities for the confirmed quasars. The number of quasars increases dramatically with decreasing radio flux density near the FIRST survey limit. This is because at 1 mJy, the FIRST survey is probing the larger, radio-quiet (but obviously not radio-silent) quasar population. This is also clearly seen in Figure 8(a), which plots the monochromatic radio luminosity versus redshift for FBQS quasars. FIRST is sensitive to a large population of low radio-luminosity quasars, especially at low redshift.

In §2.2 we discussed the importance of the Malmquist bias vis a vis the E magnitude cutoff for the sample. The rapid increase in the FBQS counts toward our 1 mJy flux density cutoff implies that there is also a radio Malmquist bias in our sample. The slight nonuniformity of the FIRST survey flux density limit directly affects the FBQS sample and could create the appearance of large scale structure, since regions of higher sensitivity will have an excess of quasars. This effect must be accounted for in analyses of large-scale structure in the FBQS sample.

Even though the number of quasars increases sharply below a flux density of several mJy, the number of non-quasar candidates rises even faster such that the efficiency of identifying quasars decreases as the radio flux density decreases (see Fig. 7b). Nonetheless, quasars near the FIRST flux density limit are worth the effort because it is here that the FBQS is making a unique contribution, probing the transition between radio-loud

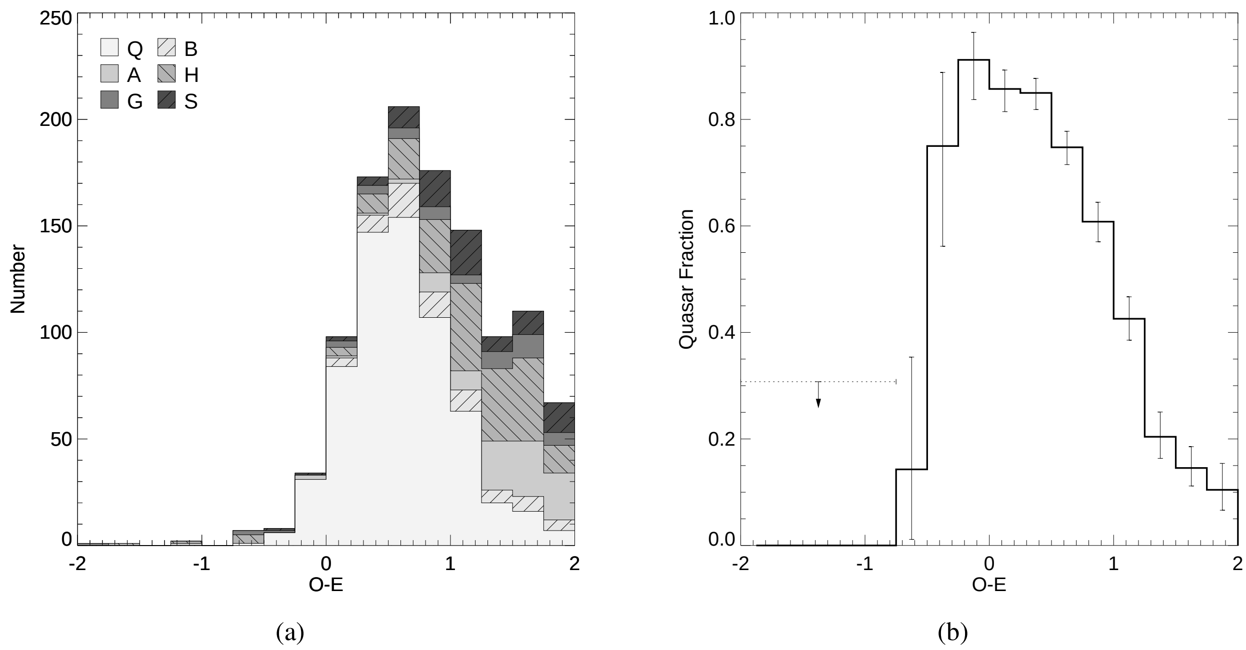



FIG. 5.— (a) Histogram of extinction-corrected colors of identified FBQS candidates. (b) Fraction of quasar identifications as function of color.

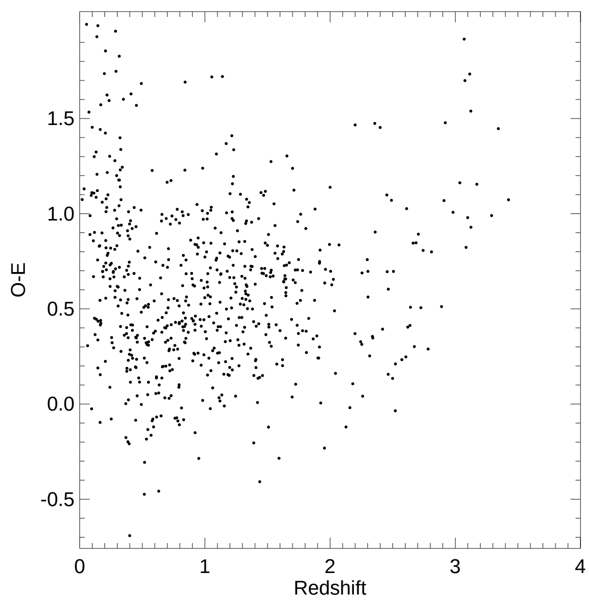
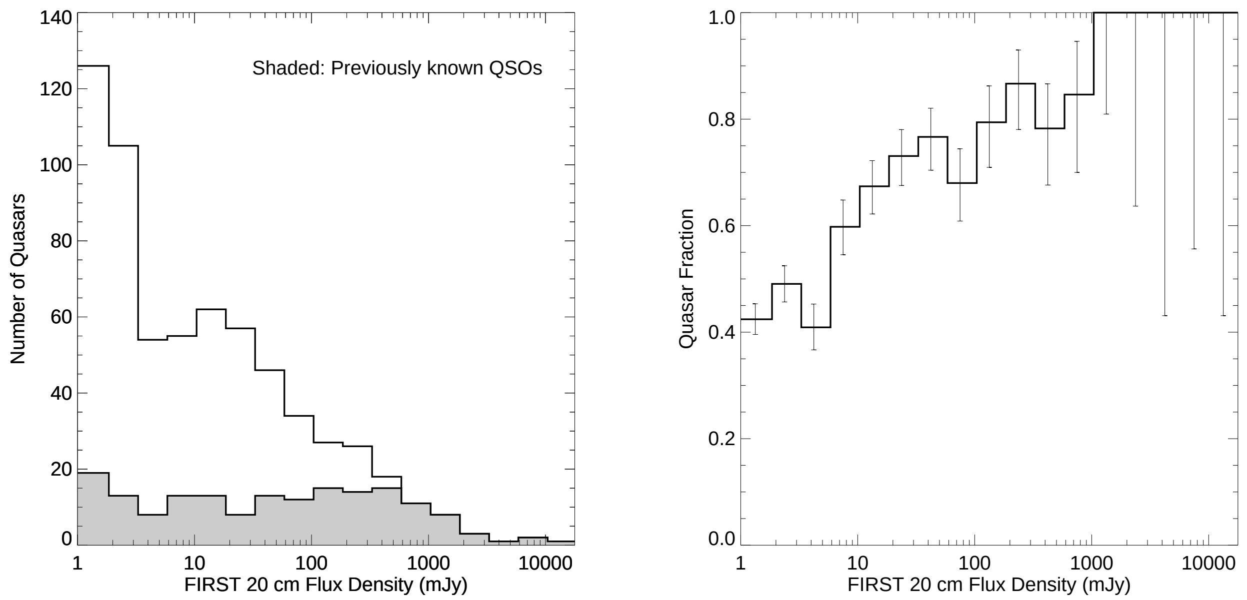
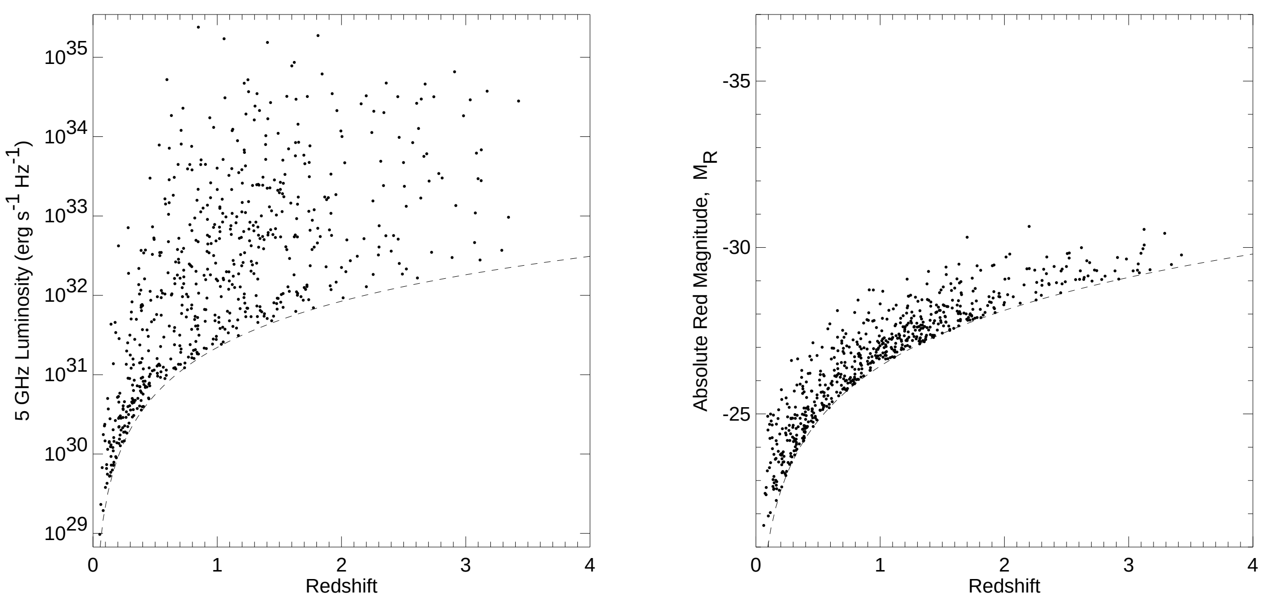



FIG. 6.— Optical color versus redshift for FBQS quasars. At $z > 3$ the colors of the quasars begin to redden, so that high-$z$ quasars may be lost from the FBQS sample due to the color cut at $O-E \leq 2$ (Hook et al. 1995).




(a) (b)

FIG. 7.— (a) Histogram of FIRST integrated radio flux densities of FBQS quasars. Shaded: previously known quasars. (b) Fraction of FBQS candidates identified as quasars as function of radio flux density. The flux densities come from the FIRST catalog and so include only the core radio emission.




(a) (b)

FIG. 8.— FBQS quasar luminosities versus redshift in the radio and optical. (a) Radio luminosity at a rest frequency of 5 GHz versus redshift, using spectral index $\alpha = -0.5$. (b) Absolute red magnitude versus redshift, using spectral index $\alpha_{opt} = -1$ for the $K$-correction. Dashed lines show 1 mJy FIRST detection limit and $E = 17.8$ APM magnitude limit. The radio luminosities have a much larger dynamic range and do not crowd as closely against the detection limit as do the optical magnitudes.

and radio-quiet objects. The distribution of objects in the transition region is discussed further below (§5.4).

### 2.6. *How Efficiently Can Quasars Be Selected?*

The fraction of FBQS candidates that turns out to be quasars is, as shown above, a function of magnitude, color, radio-optical separation, etc. This raises an interesting question: how efficiently can we select quasars, using only the information that is available *before* taking spectra? In other words, how well can we maximize the number of quasars discovered per spectrum taken?

It is clear that by setting tight limits on the separations (Fig. 2) and colors (Fig. 5), and by observing only the optically fainter (Fig. 4) and radio-brighter (Fig. 7) objects, we could eliminate many of the FBQS candidates that turn out not to be quasars and so increase our efficiency. However, the completeness of the sample would suffer greatly using such a strategy, and many of the quasar candidates rejected would be among the more interesting types (e.g., radio-quiet, radio-intermediate, and high-redshift objects.)

To explore this question quantitatively, we have applied artificial-intelligence methods to classify the FBQS candidates according to their *a priori* (before taking spectra) probability of being quasars, $P(Q)$. There are a number of classification methods that we could have used (neural nets, nearest-neighbor algorithms, clustering methods, Bayesian classifiers, etc.); we chose to use the oblique decision tree classifier OC1[14] (Murthy, Kasif, & Salzberg 1994), which we have found to represent a good compromise between the competing goals of being fast in training and in application and of generating accurate, understandable classification algorithms. In the past this method has been successfully applied to cosmic ray identification in HST images (Salzberg et al. 1995), to star-galaxy discrimination for the Guide Star Catalog-II (White 1997), and to the problem of flagging sidelobes appearing in the FIRST catalog (WBHG97).

#### 2.6.1. *Description of OC1*

OC1 takes as input a *training set* of objects that have known classifications; in our case, we use all objects with spectra as the training set. Each object is described by a vector of numerical *features* (magnitudes, colors, and so on.) OC1 constructs a *decision tree* that accurately classifies the training set.

At each node in the tree a linear combination of the feature values plus a constant is computed; if the sum is positive, the right branch of the tree is taken, otherwise the left branch is taken. After each branch, there may be another decision test node, or the tree may terminate (a "leaf" node). To classify an unknown object, one starts at the tree's root node and works down the decision tree, doing a series of tests and branches, until a leaf node is reached. The OC1 program attempts to produce trees that have pure samples of training-set objects at each leaf node (i.e., in the current case it tries to separate the training objects so that each leaf has nearly all quasars or nearly all non-quasars.) The unknown object is classified as quasar or not depending on which is the majority type of object at the final leaf.

#### 2.6.2. *Voting Decision Trees*

We have improved on the accuracy of the classification by using not just a single tree, but rather a group of 10 trees that vote. This multiple-tree approach has been shown to be quite effective (Heath, Kasif, & Salzberg 1996). Searching for a good decision tree is an extremely difficult optimization problem; to find an approximate solution, OC1 uses a complex search algorithm that includes some randomization to avoid the classic problem of getting stuck in local minima in the many-dimensional search space. Thus, one can run OC1 many times using different seeds for the random number generator to produce many different trees.

Heath, Kasif, & Salzberg 1996 used a simple majority voting scheme: classify the object with each tree and then count the number of votes for each class. We have improved on this by using a weighted voting scheme, where each tree splits its vote between the quasar and non-quasar classes depending on the populations of the two types from the training set at that leaf. If an object winds up at a leaf node with $N$ training set objects of which $Q$ are quasars, the tree's single vote is split into $(Q+1)/(N+2)$ in favor and $(N-Q+1)/(N+2)$ against a quasar classification. (The particular form used was derived from the binomial statistics at the leaf.) We considered a variety of other voting schemes, but this one appeared to be the most accurate and robust.

#### 2.6.3. *Testing the Classification Accuracy*

The classifier was tested using 5-fold cross-validation. The training set (which consists of $\sim 1000$ objects with spectra) is divided into 5 equal-sized, randomly selected subsets (or *folds*). Setting aside the first fold, 10 decision trees are constructed by training on the other 4 folds. Then the trees are tested on the first fold, which was not used in the training, computing $P(Q)$ for each object in the fold. This process is repeated 5 times, each time holding back a different fold; when complete, we have used each object for testing exactly once. This technique, which is a standard approach, avoids the over-optimistic results for classification accuracy one would get if one simply trained on all the data and then tested the classifier on the same data.

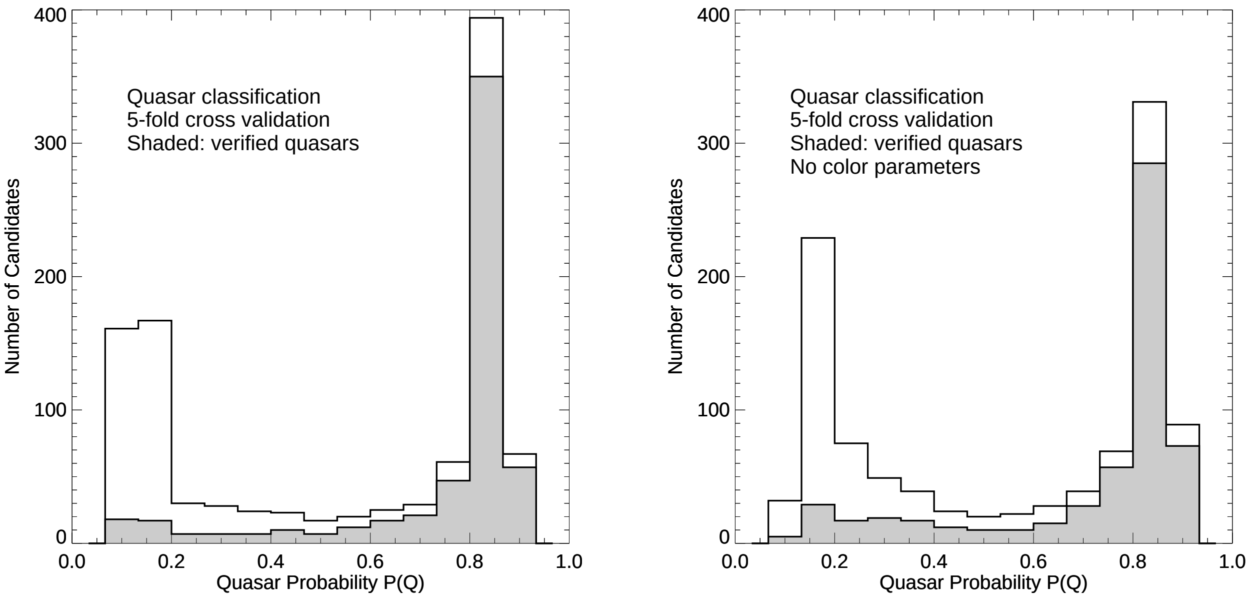
#### 2.6.4. *Results*

The approach may sound complicated, but the ultimate result is simple — for each object, we compute the probability $P(Q)$ that the object is a quasar. A perfect classifier would assign all quasars $P(Q) = 1$ and all non-quasars $P(Q) = 0$; in a non-ideal case, we want to see quasars with $P(Q)$ values concentrated near unity and non-quasars near zero.

Figures 9(a) and 9(b) show the distribution of $P(Q)$, the probability that an object is classified as a quasar, using 10 voting trees. The distinction between the two cases is the set of features used for classification. Example (a) used 7 parameters: $E$, $O-E$, $\log S_p$ (where $S_p$ is the FIRST peak flux density), $S_i/S_p$ (where $S_i$ is the FIRST integrated flux density), the radio-optical separation, and the two PSF parameters from the APM catalog that measure how point-like the object is on the $O$ and $E$ plates. Example (b) omitted the parameter $O-E$, so that no color information was included.

Both panels of Figure 9 clearly show that the classifier does a good job of separating the FBQS candidates into high and low probability quasars. In both cases the distribution is encouragingly close to that of an ideal classifier. The quasar/non-quasar separation is somewhat better when the $O-E$ color information is used: the distribution is more strongly peaked at the low and high $P(Q)$ ends. We created the color-free classifier because an examination of the

[14] OC1 is available via anonymous ftp from `http://www.cs.jhu.edu/salzberg/announce-oc1.html`




(a) (b)

FIG. 9.— Distribution of the *a priori* probability that an object is a quasar, $P(Q)$, for all identified FBQS candidates. The shaded histogram is the distribution of confirmed quasars, while the unshaded area represents non-quasars. A perfect classifier would put all the quasars at $P(Q) = 1$ and all the non-quasars at $P(Q) = 0$. The probabilities were calculated with decision trees using 5-fold cross-validation, as described in the text. (a) $P(Q)$ computed using all available parameters, including $O-E$ color. (b) $P(Q)$ computed without color. The second approach is less efficient at distinguishing quasars from non-quasars, but it does not discriminate against high-redshift or heavily reddened broad absorption line quasars as does the method including color. In both cases, the great majority of the $P(Q) < 0.2$ quasars are at low redshift ($z < 0.3$) and are presumably slightly resolved.

quasars with $P(Q) < 0.2$ (the shaded bins below 0.2 in Fig. 9a) shows that 4 of the 36 misclassified objects are in the interesting category of red quasars, either because they are high redshift (J092104.4+302031, $z = 3.34$) or because they have strong broad absorption lines (BALs; J105427.1+253600, J120051.5+350831, and J132422.5+245222). If we exclude color as a classification criterion, the number of $P(Q) < 0.2$ quasars stays about the same (34 objects), but the misclassified candidates are neither high-redshift nor BAL quasars.

In both cases, the great majority of the low $P(Q)$ quasars are low redshift objects: 24/34 (70%) of the $P(Q) < 0.2$ objects have $z < 0.25$. These objects are probably being recognized as slightly resolved on the POSS-I plates and so are, in some sense, rightly classified as non-quasars (since they are perceptibly non-stellar.)

At the other extreme, the great majority of the high $P(Q)$ candidates that are not quasars turn out to be BL Lacs. Using the classifier with color, there are 419 objects with $P(Q) > 0.85$, of which 373 (89%) are quasars and 46 (11%) are non-quasars. But 31 of the 46 non-quasars are BL Lacs. If we combine the BL Lacs with the quasars, an astounding 96.4% of the high probability objects are quasars or BL Lacs and only 3.6% are other types of objects.

Figure 10 shows the fraction of candidates that turn out to be quasars as a function of $P(Q)$. The distribution follows well the expected linear form assuming that $P(Q)$ is, in fact, a good estimate of the probability that an object is a quasar.

Finally, Figure 11 shows how the completeness $C$ and reliability $R$ of the sample vary as we change the $P(Q)$ threshold, $P_C$, above which candidates are accepted into the sample. If we set $P_C = 0$, all objects in the original FBQS sample are included, and the resulting sample is 100% complete (at least, it includes all the objects in the current paper) but is only 55% reliable (so 45% of the candidates turn out to be non-quasars.) As $P_C$ increases, the reliability of the sample increases dramatically at little cost in completeness. If color is used by the classifier, one can construct a sample that is about 80% reliable while still being 90% complete, or one can choose higher reliability (up to 89%) if lower completeness (70–80%) is acceptable. The results when color is not used are not quite as good, but still it is possible to construct an impressively pure sample at modest cost in completeness.

The way we might use this information depends on the scientific goals of the quasar survey. For the FBQS, our scientific interest is in taking a census of quasars to understand their demographics and physics. Consequently, we put a high priority on completeness and are willing to pay for it by spending extra telescope time to get spectra of lower probability candidates. We are loathe to risk losing high redshift and heavily absorbed BAL quasars from our sample, so we prefer to restrict the use of color and to aim instead for a highly complete sample.

On the other hand, if one is interested in quasars mainly as sources to probe the intergalactic medium, it could be appropriate to sacrifice completeness and the occasional red quasar in order to get a highly pure sample. In a search for quasars at particular locations, for example near other quasars or behind galaxy clusters, this approach can be used to identify excellent candidates with high probability, before a single night of telescope time has been used on spectroscopy.

To put our money where our mouths are, Table 8 gives our estimate (using color parameters) of the probability $P(Q)$ that each object is a quasar for the FBQS candidates that have not as yet been identified. As these objects are observed, we are confident that our predictions will be (in the mean) borne out. While we expect to use our simple sample-definition criteria as we continue expand the FBQS sample, we are already using

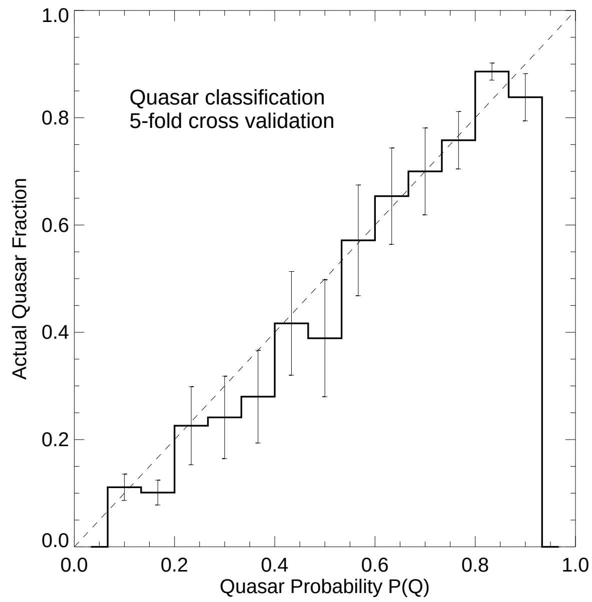



FIG. 10.— Fraction of candidates that are confirmed as quasars as a function of $P(Q)$. This was computed including color as one of the parameters, but the results without color are essentially identical. The dotted line has a slope of unity. The probability is a good predictor of the likelihood that a candidate will turn out to be a quasar.

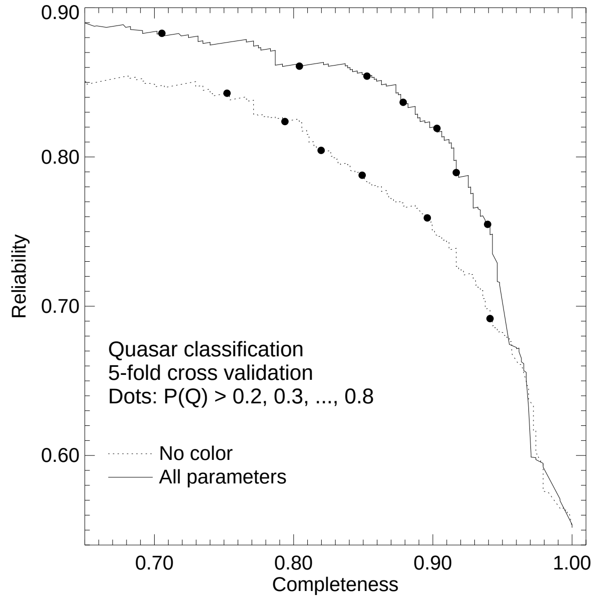



FIG. 11.— Completeness $C$ and reliability $R$ of the sample as a function of the threshold selected for the probability $P(Q)$. The completeness is the fraction of quasars from the complete FBQS sample that are included at the selected $P(Q)$ threshold; the reliability is the fraction of selected candidates that are quasars. The solid line is computed using all parameters; the dashed line excludes color. The FBQS sample presented in this paper is the point at $C = 1$, $R = 0.55$ (i.e., the sample is complete but only 55% of the candidates turn out to be quasars.) The efficiency of the quasar search (determined by the reliability of the prediction) can be increased to $\sim$ 89% using color (85% without color), if completeness is not crucial. Even with completeness greater than 90%, the reliability can be higher than 80%.

the $P(Q)$ probabilities to assist in prioritizing targets for observation. Further improvements are probably possible utilizing advance knowledge of the X-ray and infrared properties of the candidates.

### 2.7. *Summary of Incompleteness of the FBQS Sample*

In brief, the selection criteria applied to the FBQS sample lead to several possible kinds of incompleteness and bias:

- The requirement of close positional coincidence excludes extended, lobe-dominated radio sources with no core component.
- The $E$ magnitude cut combined with the steep quasar luminosity function leads to unavoidable Malmquist bias in the sample. There is also a radio Malmquist bias from the FIRST flux density limit, which varies slightly as a function of position on the sky.
- The requirement that the objects be stellar on the POSS-I plates leads to incompleteness for low-redshift objects (which may appear resolved) and will bias against the discovery of wide gravitational lenses. Since the APM classifier is not perfect, there can also be truly stellar objects that are misclassified as galaxies on both plates and so are missing from our sample.
- The red color cut makes the sample incomplete for very high redshift ($z \gtrsim 3.5$) and heavily obscured quasars; however, most such objects are likely to be optically too faint to be in the sample anyway.
- The FIRST catalog itself is incomplete for weak extended sources.

It is important to note that this survey is targeting quasars and hence the selection criteria have been optimized for quasars. Generally speaking, what works for quasars does not necessarily work for BL Lac objects, AGNs, or H II galaxies. In particular, requiring the optical morphology to be stellar and the optical colors to be bluer than $O-E=2$ excludes very few quasars, but probably excludes the majority of the other types of objects. So even though we are finding examples of such objects, the lists should not be taken as complete.

For most purposes, however, these selection effects do not seriously affect the utility of the sample for statistical studies of quasars. The biases in optically selected samples are generally worse in that they are more difficult to characterize and correct. For example, the differential $K$-correction for broad-absorption line quasars introduces a complex selection in number counts versus redshift. The FBQS at least partly redresses these biases (e.g., by allowing much redder objects to be included.) Indeed, the FBQS is, within its limits, perhaps the most complete large-area quasar survey that exists.

## 3. OPTICAL SPECTROSCOPY

Spectra for the quasar candidates are being collected at five different observatories: the 3-m Shane telescope at Lick Observatory, the 2.1-m telescope at Kitt Peak National Observatory[15], the 3.5-m telescope at Apache Point Observatory[16], the $6 \times 1.8$-m Multiple Mirror Telescope ("MMT classic"), and the 10-m Keck-II telescope. The spectrographs at the five observatories all have different resolutions and wavelength coverage, which are summarized in Table 1. The observations are made in a wide variety of atmospheric conditions ranging from photometric to cloudy with both good and bad seeing. Many of the candidates have been observed more than once. We have observed almost all the candidates in the original candidate list, even those with previous identifications. (In several cases we have found errors in published redshifts or positions. Objects found to be discrepant compared with the Véron-Cetty & Véron 1998 catalog are noted in the table.)

## 4. SPECTROSCOPIC RESULTS

Applying all the criteria described in §2 results in a list of 1238 candidates in 2682 square degrees, of which 169 are previously known quasars. In Tables 2–7 we present a list of all the candidates in the FBQS sample with spectral classifications. For each object we list the FIRST catalog RA and Dec[17] (J2000), the recalibrated and extinction-corrected $E$ and $O$ magnitudes, the red extinction correction $A(E)$, and the FIRST peak and integrated radio flux densities. The radio-optical positional separation and APM star-galaxy classification (used to define the sample) are also given. The objects have been segregated into 6 tables by their optical spectral classification. Quasars are listed in Table 2, narrow line AGN in Table 3, BL Lac objects in Table 4, H II/star-forming galaxies in Table 5, galaxies without any emission lines in Table 6, and stars in Table 7. The criteria used to classify spectra are given below. Table 8 lists the objects for which spectra have not yet been obtained.

For the purposes of the FBQS, we have classified any object with broad emission lines as a quasar: i.e., we do not make a distinction between quasars and Seyfert 1 galaxies. We also make no distinction between quasars and broad-line radio galaxies, the radio-loud counterparts to Seyfert 1 galaxies. The absolute blue magnitude is given for objects with redshifts, so a conventional cut at $M_B = -23$ can be made if desired to exclude lower-luminosity objects. Of the 636 quasars, 50 fall into this lower luminosity category. (The APM magnitudes are far too bright for extended objects with apparent magnitudes brighter than $\sim 12$ mag, so the high luminosities implied by the $M_B$ values for such objects should not be taken seriously. We have appended a note in the table for such objects giving the blue magnitude from NED[18] when available.)

BL Lac classification is based on the traditional definition presented in Stocke et al. 1991: all objects with emission line rest-frame equivalent widths less than 5 A and/or 4000 A break contrasts ($Br_{4000}$) less than 25% appear in Table 4. When emission lines or $Br_{4000}$ have been measured, we list the quantities in the notes. Although this definition has been shown to be

[15]Kitt Peak National Observatory, NOAO, is operated by the Association of Universities for Research in Astronomy, Inc. (AURA), under cooperative agreement with the National Science Foundation

[16]The Apache Point Observatory is owned and operated by the Astrophysical Research Consortium.

[17]The preferred naming convention for objects in the sample is "FBQS Jhhmmss.s+ddmmss", where the Right Ascension and Declination given in the table are truncated (not rounded.) This is consistent with the IAU-approved naming convention for FIRST radio sources.

[18]The NASA/IPAC Extragalactic Database (NED) is operated by the Jet Propulsion Laboratory, California Institute of Technology, under contract with the National Aeronautics and Space Administration.

TABLE 1
CHARACTERISTICS OF SPECTROGRAPHS

| Telescope | Approximate Wavelength Range (A) | Resolution (A) |
|---|---|---|
| Lick 3-m | 3600–8150 | 6 |
| KPNO 2.1-m | 3700–7400 | 4 |
| APO 3.5-m | 3650–10000 | 10 |
| MMT $6 \times 1.8$-m | 3600–8500 | 8 |
| Keck-II 10-m[a] | 3800–8800 | 8 |

[a]Oke et al. 1995 describes the LRIS spectrograph on the Keck-II telescope.

too restrictive, excluding some objects that otherwise exhibit BL Lac-like properties (see Marchã et al. 1996 and Laurent-Muehleisen et al. 1998), our preliminary analysis indicates that broader criteria admit many objects into the BL Lac class that do not properly belong there. This is mainly because the FBQS candidate objects are more than two orders of magnitude fainter in the radio than the Marchã et al. sample used to define the newer BL Lac criteria. The FBQS selection thus admits many objects with very low radio luminosities that exhibit weak optical emission and absorption features like the high radio luminosity objects in Marchã et al. Many of these objects are clearly not BL Lacs despite being consistent with the broader optical selection criteria. A full analysis of the BL Lac content of the FBQS sample is underway (Laurent-Muehleisen et al. 1999) and to avoid including non-BL Lacs in the table, we list only those objects that adhere to the strictest criteria.

We divide objects with narrow emission lines into narrow-line AGN and H II galaxies based on the ratios of [N II] to H$\alpha$ and [O III] to H$\beta$. An object is classified as a narrow-line AGN if [N II] is more than 60% of H$\alpha$, or (when H$\alpha$ is not observed) if [O III] is more than twice H$\beta$; otherwise it is designated as an H II galaxy (Osterbrock 1989). The classification based on [O III]/H$\beta$ can be ambiguous and so the H II/AGN separation is less reliable for higher redshift objects.

Some of the objects classified as H II galaxies are likely to be narrow-line Seyfert 1 galaxies, which can have similar line ratios (Osterbrock & Pogge 1985). For this paper we have not attempted to separate the two types of objects.

All other objects are classified as either normal galaxies (with no obvious emission lines) or stars. Galaxies flagged as previously known in Table 6 have been identified in NED; in most cases we have not obtained spectra, so their emission line (and $\mathrm{Br}_{4000}$) status should be considered less certain than the other objects in the table.

Note that most stars in the sample are likely to be chance coincidences with the radio sources. The APM positions for stars are degraded by 40 years of proper motion between the POSS-I and FIRST epochs; coupled with the rarity of radio emission from stars, this prevents a useful match between FIRST and APM for stars. Recent epoch stellar catalogs (ideally with proper motions) are required to study the radio emission from stars using FIRST (Helfand et al. 1999a). One object listed in the stars table, J163302.6+234928, is detected in the ROSAT All Sky Survey Bright Source Catalog (Voges et al. 1996) and is therefore likely to be a true stellar radio source identification. Another, J164018.1+384220, is actually a known halo-population planetary nebula (Barker & Cudworth 1984). It is included with the stars because it is a Galactic object (and it was formerly a star.) A dozen or more of the other objects in Table 7 are also likely to be real radio stars, but current epoch optical positions will be needed to secure the identifications.

In Tables 2–6, we list the measured redshift where available (redshifts are unknown for many of the BL Lac objects). Redshifts for quasars and BL Lac objects were computed by cross-correlating the spectra with templates; for the quasars, a template constructed from the FBQS objects themselves was used (Brotherton, Tran, et al. 1999). We use the redshift to calculate for each object the radio luminosity $L_R$ at a rest frequency of 5 GHz (assuming a radio spectral index of $\alpha = -0.5$), the absolute $B$ magnitude $M_B$, and, as a measure of radio loudness, the ratio $R^*$ of the 5 GHz radio flux density to the 2500 A optical flux in the quasar rest frame (assuming $\alpha_{opt} = -1$ and using the definition of Stocke et al. 1992). We use the (APS-calibrated) APM $O$ magnitude as a direct estimate of $B$, and we do not correct the optical magnitude for the emission line contribution. The cosmological parameters $H_0 = 50\,\mathrm{km\,s^{-1}\,Mpc^{-1}}$, $\Omega = 1$, and $\Lambda = 0$ were used in the luminosity calculations. When the redshift is not available we omit $M_B$ and $L_R$, and we compute $R^*$ from the ratio of the 5 GHz flux density to the 2500 A flux as above, but no $K$-corrections are applied. There is also a comments column, which notes details of particular interest such as the presence of broad absorption lines or damped Lyman $\alpha$ absorption lines, whether an object was previously known in the Véron quasar catalog (Véron-Cetty & Véron 1998), the Hamburg catalog (Hagen, Engels & Reimers 1999) or in NED, association with a ROSAT X-ray source or an IRAS infrared source, etc.

The spectra for all the objects identified as quasars are displayed in Figure 16.

## 5. DISCUSSION

Detailed analysis of the FBQS sample will be deferred to other papers, but we briefly discuss here both general properties of the sample and some interesting source classes.

### 5.1. *Redshift Distribution*

While the FIRST survey is clearly sensitive enough to detect quasars out to redshifts greater than 3, the preponderance of FBQS quasars are at redshifts below 2 (Fig. 12). The precipitous drop beyond $z = 2$ is attributable more to the limit in $E$ than to the limit in radio flux density. It is apparent in the redshift-radio luminosity distribution (Fig. 8a) that the high-redshift quasars do not crowd against the radio detection limit; they are missing from the sample mainly because they are too faint in the optical (Fig. 8b). On the other hand, the lack of quasars at $z > 3.5$ could be partly due to the red color cut used to define the sample, though the number of quasars beyond $z = 3$ that are lost due to the color limit is certainly small (§2.4).

### 5.2. *Efficiency of the FBQS*

The absolute efficiency of the FBQS in identifying quasars can be estimated by comparing the number of quasars found in the FBQS to the number expected from previous surveys. Figure 13 compares the sky density of FBQS quasars to estimates of the sky density of optically selected quasars as given by La Franca & Cristiani 1997. A correction factor of 1.17 has been applied to the FBQS counts in the $B = 17.4$–$17.9$ bin to account for objects that do not appear in the FBQS either because they are too faint on the red plate ($E > 17.8$) or because they are not yet identified (Table 8). The correction factor for the other bins is negligible, changing the raw counts by less than 3%.

For quasars brighter than $B = 16.4$ mag, the FBQS quasar density is indistinguishable from the density of optically selected quasars, so the efficiency is very high. The efficiency drops at fainter magnitudes, falling to $\sim 25\%$ when $B = 17.4$–$17.9$ mag. This does not mean that FIRST detects all optically bright quasars — we know that there are radio-silent quasars that would not be detected by FIRST. We can conclude, however, that FIRST detects the bulk of bright radio-quiet quasars and that the incompleteness of the FBQS (due mainly to very low radio fluxes) is similar to the incompleteness of bright optically selected samples (which is typically due to objects missed due to unusual color and emission line properties.)

An analysis of both quasars in the Véron-Cetty & Véron 1998 and Hamburg (Hagen, Engels & Reimers 1999) catalogs indicates that approximately 25% of all quasars brighter than $E = 17.8$ are detected by the FIRST survey. The detected fraction is a bit lower for the Hamburg catalog – FIRST detects 17 out of 78 (22%) quasars in the FBQS area. That may just be a reflection of the statistics of the small numbers involved, or it may indicate that the Hamburg survey is more efficient than previous optical surveys at detecting quasars with unusual optical properties.

### 5.3. *Advantages Over Optical Surveys*

When compared to previous quasar surveys, we find that the FBQS has two primary advantages. First, because it is a radio-selected survey, it has high selection efficiency, mainly because detectable radio emission from stars is extremely rare. Only about one in $10^4$ 12th magnitude stars has radio emission detectable by the FIRST survey (Helfand et al. 1999a). In contrast, X-ray selected samples are contaminated by ubiquitous stellar X-ray emission. The FBQS can cover a significantly larger sky area than optical objective prism surveys, with very much less telescope time required than for optical color-selected surveys. Perhaps the color-selection method will become comparably efficient with the advent of the wide-area, 5-color Sloan Digital Sky Survey, but until then radio selection is the most efficient technique for discovering new quasars (once someone has done the hard work of making a deep, wide-area radio catalog.)

Second, the radio-selected FBQS can discover classes of quasars that are rare or unknown in other surveys because of biases against them. The best example in the FBQS sample are the extreme broad absorption line quasars that show low ionization iron absorption. Becker et al. 1997 reported the discovery of two such objects, J084044.4+363328 ($z = 1.22$; included in this paper) and J155633.8+351758 ($z = 1.48$; too faint for the FBQS.) This paper includes 3 additional objects: J104459.5+365605 ($z = 0.701$), J121442.3+280329 ($z = 0.700$), and J142703.6+270940 ($z = 1.170$). The spectra of these objects are remarkable; they are often difficult even to recognize as quasars. The emission lines are almost completely masked by absorption, and the colors of these objects are quite red. Such objects would be very unlikely to be recognized in any existing optically selected survey, so we really have no idea how common they may be among radio-quiet quasars.

In total there are 29 definite or tentative BAL quasars among the 636 FBQS quasars. This is comparable to the percentage of BAL quasars in optically selected samples (Foltz et al. 1990). The properties of the FBQS BAL quasar sample are discussed further by Becker et al. 1999.

Of course, the disadvantage of a radio-selected survey is that we can find only quasars with radio emission above the FIRST 1 mJy limit, but as discussed above these constitute a significant minority (25%) of all quasars brighter than $E = 17.8$. The FIRST survey is sufficiently deep that we detect many radio-intermediate and even radio-quiet quasars; only radio-silent quasars are not represented in the sample. This is most apparent in the number counts (Fig. 13), which are very similar for FBQS and optically selected samples for the brightest objects. It is the combination of large optical quasar surveys with the FBQS that may be most productive for studying quasar physics.

### 5.4. *No Radio-Loud/Radio-Quiet Dichotomy?*

Figure 14 shows the distribution of the radio-loudness parameter $R^*$ versus redshift. An $R^*$ of 10 is generally taken as the divide between radio-loud and radio-quiet objects (Stocke et al. 1992). It is clear that over the entire range of observed redshifts, the FBQS is reaching well into the radio-quiet population and that there is no obvious deficit of quasars at the boundary. Previous studies, in contrast, have always found a bimodal distribution in $R^*$ with a dearth of quasars in the range $3 \lesssim R^* \lesssim 100$ (e.g., Miller, Peacock, & Mead 1990; Stocke et al. 1992).

The inadequacy of previous surveys in finding these radio-transition quasars is well illustrated in Figures 15(a) and 15(b), which show the histogram of the number of quasars versus $R^*$ compared with the distribution for previously known quasars. Although the FBQS shows a sharp increase in the number of quasars for $R^* < 100$, this population is actually decreasing among the ranks of previously known quasars. The vast majority (85%) of FBQS quasars with $1 < R^* < 100$ are newly discovered, while those with more extreme $R^*$ values in both

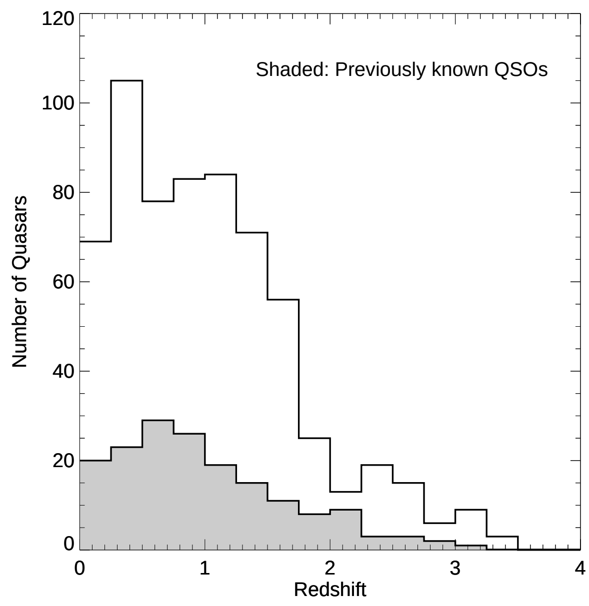



FIG. 12.— Histogram of redshifts for FBQS quasars. Shaded: previously known quasars.

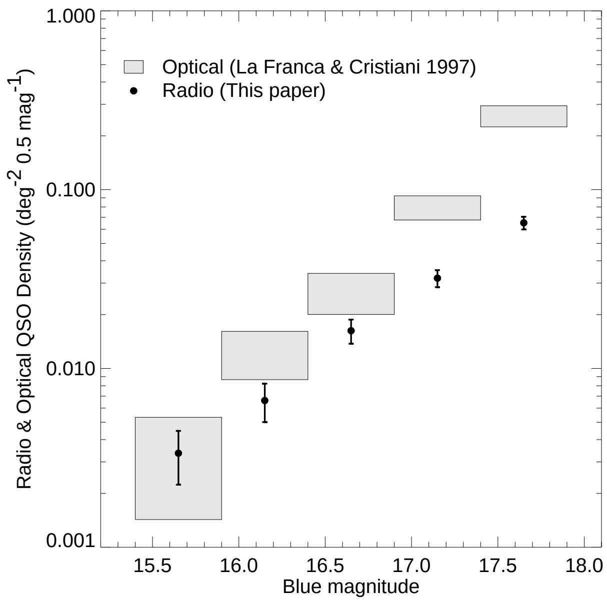



FIG. 13.— Density of FBQS quasars on the sky as a function of extinction-corrected blue magnitude. Shaded boxes show the density of all optically selected quasars from La Franca & Cristiani (1997). The redshift range of FBQS quasars is restricted to $0.3 \leq z \leq 2.2$ to match the optical counts. The surface density of FBQS quasars is very similar to optically selected samples for $B < 16$ mag, indicating that FIRST detects most optical quasars and that the FBQS and optical samples are similarly incomplete for bright objects. At $B = 18$ mag the FBQS sky density drops to $\sim 25\%$ of the optically selected quasar density.

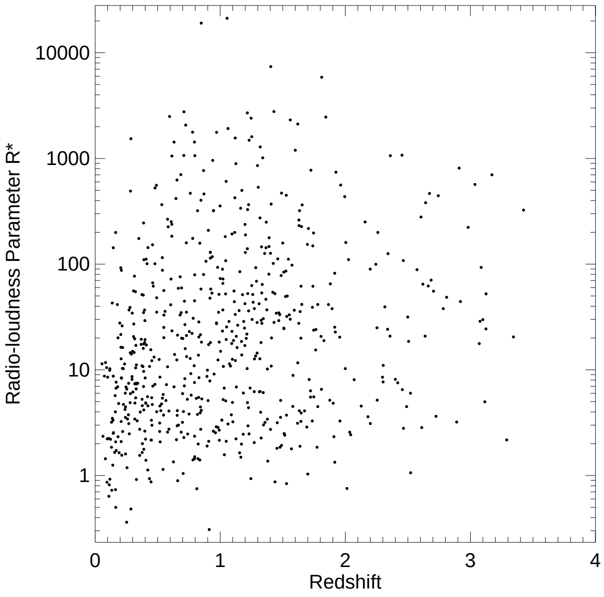



FIG. 14.— Radio-optical ratio $R^*$ (rest-frame ratio of the 5 GHz radio flux density to the 2500 A optical flux; Stocke et al. 1992) versus redshift for FBQS quasars.

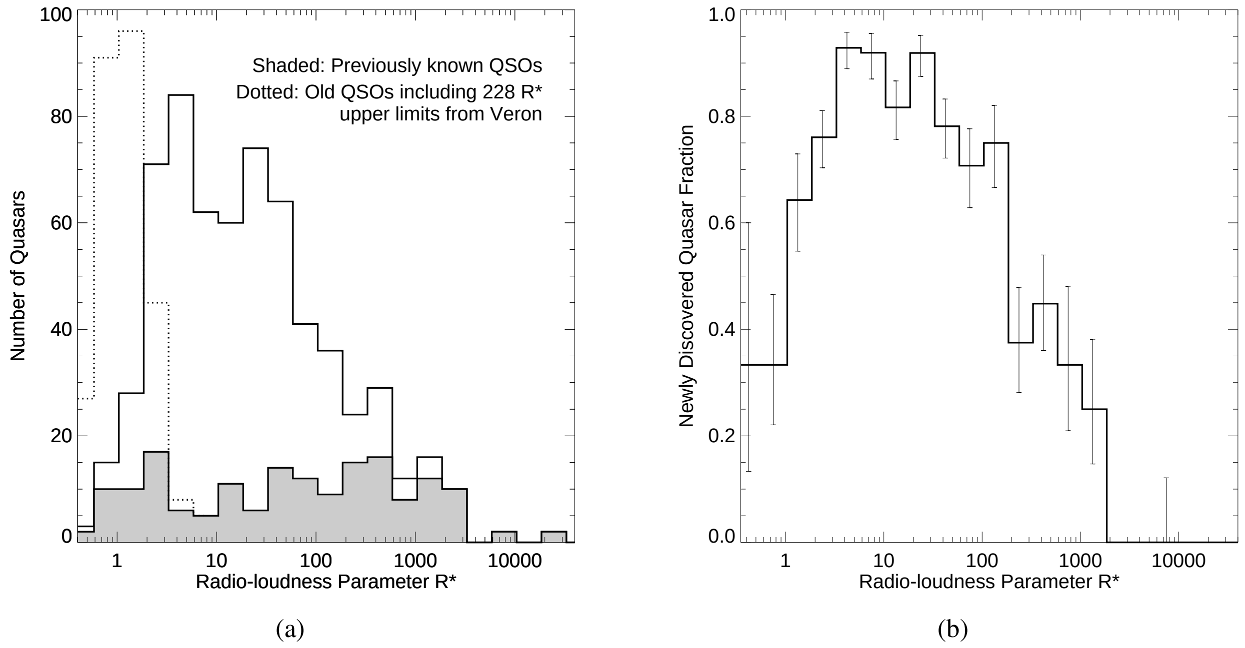



FIG. 15.— (a) Histogram of radio-optical ratio $R^*$ (Stocke et al. 1992) for FBQS quasars. Shaded: previously known quasars. The dotted histogram includes $R^*$ upper limits for Véron catalog objects in the FBQS area but not detected by FIRST. The Véron quasars (shaded plus dotted histograms) show a bimodal distribution of $R^*$, with a dip around $R^* = 3$–$30$, but the FBQS quasar counts rise continuously through that region and show no obviously evidence for bimodality. (b) Fraction of quasars that were newly discovered versus $R^*$. The FBQS is increasing the number of known objects in the radio-quiet/radio-loud transition region ($R^* = 1$–$100$) by a large factor.

directions are well-represented in existing samples.

Figure 15(a) also shows a histogram for previously known quasars that includes $R^*$ upper limits for all the Véron quasars (Véron-Cetty & Véron 1998) that fit the FBQS criteria (including sky area and brightness) but that are not detected by the FIRST survey. This distribution is certainly bimodal; however, the FBQS quasars fill the gap and there is no clear evidence for bimodality in the combined FBQS and radio-quiet Véron distribution.

Conceivably this is the result of selection effects in the FBQS, though we have no plausible explanation for how our sample selection could eliminate a gap in the $R^*$ distribution. A definitive conclusion on the actual distribution of quasar radio-loudness awaits full analysis and modeling of the sample and its selection effects.

### 5.5. *Summary*

This paper purposely defers most of the scientific studies that can be based on this new sample of quasars in order to make the data available to the community more quickly. Clearly the value of this database will be greatly enhanced with complementary data at other radio frequencies as well as in the X-ray, IR, and UV bands. The FBQS will serve as a vital bridge between the traditional radio-loud and radio-quiet quasar samples. The literature is full of characteristics such as line ratios, X-ray spectral indices, and broad absorption lines that appear to depend on radio-loudness. With the new sample, we can begin to explore the radio-loudness transition zone.

The results in this paper are based on the 1997 version of the FIRST radio catalog, which covered 2682 square degrees of the north Galactic cap. As this is written in mid-1999, data have been collected that extend the area covered by FIRST to 6000 square degrees, and the FBQS candidate list will soon stand at $\sim 2700$; $\sim 1500$ of those candidates will eventually be confirmed as quasars (assuming that the telescope time allocation committees continue to be kind to us.) At that point the FBQS catalog will be one of the largest uniformly selected quasar surveys and will be an even more powerful tool for furthering our understanding of the quasar phenomenon.

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TABLE 2
FIRST BRIGHT QUASAR CATALOG

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | $M_B$ (11) | $\log L_R$ (12) | $\log R^*$ (13) | z (14) | Notes (15) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 07 07 32.951 | +38 22 13.44 | gE | 17.19 | 17.10 | -0.09 | 0.17 | 0.45 | 66.80 | 218.76 | -25.8 | 33.2 | 2.42 | 0.579 | o |
| 07 08 06.412 | +36 44 56.80 | gE | 16.80 | 17.63 | 0.83 | 0.17 | 0.25 | 15.80 | 15.78 | -23.8 | 31.5 | 1.54 | 0.297 | |
| 07 10 44.341 | +42 20 54.75 | * | 16.86 | 17.19 | 0.33 | 0.19 | 0.29 | 266.98 | 300.35 | -27.4 | 33.9 | 2.53 | 1.163 | o |
| 07 13 09.447 | +36 56 06.60 | * | 15.80 | 15.80 | -0.00 | 0.17 | 0.38 | 71.90 | 93.10 | -26.8 | 32.7 | 1.55 | 0.492 | o,X |
| 07 13 40.291 | +38 20 40.08 | * | 14.62 | 14.98 | 0.36 | 0.14 | 0.46 | 10.43 | 10.78 | -24.4 | 30.6 | 0.34 | 0.123 | o,X |
| 07 14 24.813 | +35 34 39.70 | * | 17.31 | 17.51 | 0.20 | 0.16 | 0.06 | 1506.51 | 1533.45 | -27.9 | 34.9 | 3.33 | 1.620 | o |
| 07 17 34.467 | +29 16 13.39 | * | 17.17 | 17.44 | 0.27 | 0.13 | 0.82 | 2.18 | 2.25 | -27.0 | 31.8 | 0.51 | 1.101 | P1 |
| 07 19 19.414 | +33 07 09.65 | * | 17.76 | 18.78 | 1.02 | 0.15 | 0.37 | 302.28 | 329.81 | -24.9 | 33.6 | 3.25 | 0.779 | |
| 07 19 21.358 | +42 12 50.86 | * | 17.15 | 17.44 | 0.29 | 0.20 | 0.08 | 7.28 | 7.83 | -27.0 | 32.3 | 1.06 | 1.074 | |
| 07 21 05.179 | +24 56 17.21 | gO | 17.39 | 17.79 | 0.40 | 0.18 | 0.43 | 4.43 | 4.44 | -24.1 | 31.1 | 1.04 | 0.375 | |
| 07 22 01.260 | +37 22 28.68 | * | 17.01 | 17.65 | 0.64 | 0.16 | 0.34 | 145.26 | 147.74 | -27.8 | 33.9 | 2.36 | 1.630 | O(APS),o |
| 07 24 18.492 | +41 59 14.40 | * | 17.65 | 18.71 | 1.05 | 0.24 | 0.16 | 7.89 | 7.90 | -26.6 | 32.6 | 1.52 | 1.552 | E(APS),O(APS),LoBAL |
| 07 24 38.348 | +34 26 21.08 | gO | 17.65 | 17.97 | 0.33 | 0.15 | 0.05 | 22.76 | 23.58 | -24.4 | 32.1 | 1.82 | 0.460 | |
| 07 25 26.450 | +29 13 41.73 | * | 17.19 | 17.76 | 0.57 | 0.12 | 0.41 | 1.64 | 0.97 | -27.2 | 31.8 | 0.48 | 1.346 | P1 |
| 07 25 50.600 | +28 19 05.83 | * | 17.01 | 17.85 | 0.85 | 0.13 | 0.19 | 37.99 | 38.85 | -28.8 | 33.8 | 1.79 | 2.663 | |
| 07 26 09.182 | +40 10 02.30 | gE | 17.76 | 19.72 | 1.96 | 0.14 | 0.77 | 97.17 | 102.36 | -21.6 | 32.3 | 3.19 | 0.286 | |
| 07 26 37.031 | +37 59 08.90 | * | 17.50 | 17.76 | 0.26 | 0.16 | 0.33 | 1.11 | 0.88 | -24.3 | 30.6 | 0.42 | 0.397 | |
| 07 28 31.661 | +40 26 15.85 | * | 15.13 | 15.26 | 0.14 | 0.13 | 0.24 | 16.96 | 16.79 | -28.0 | 32.2 | 0.57 | 0.656 | LoBAL |
| 07 29 28.475 | +25 24 51.99 | * | 17.25 | 17.81 | 0.56 | 0.15 | 0.09 | 6.83 | 6.47 | -28.4 | 32.9 | 1.04 | 2.303 | |
| 07 29 39.071 | +35 36 13.50 | * | 17.80 | 18.17 | 0.37 | 0.14 | 0.55 | 1.17 | 1.26 | -24.8 | 31.0 | 0.61 | 0.590 | ? |
| 07 29 52.300 | +30 46 45.06 | * | 16.87 | 17.30 | 0.43 | 0.18 | 0.34 | 1.48 | 1.17 | -22.5 | 29.9 | 0.41 | 0.147 | P1 |
| 07 30 47.098 | +26 34 09.89 | * | 17.41 | 17.74 | 0.32 | 0.16 | 0.44 | 1.81 | 2.15 | -25.0 | 31.1 | 0.68 | 0.531 | E(APS),O(APS) |
| 07 35 21.205 | +26 47 44.51 | gE | 16.47 | 17.77 | 1.30 | 0.13 | 0.42 | 1.66 | 1.20 | -23.1 | 30.3 | 0.63 | 0.239 | |
| 07 36 00.363 | +38 36 29.52 | * | 17.29 | 18.13 | 0.85 | 0.16 | 0.31 | 1.24 | 1.42 | -27.0 | 31.8 | 0.55 | 1.482 | |
| 07 36 23.157 | +39 26 17.38 | gE | 14.31 | 15.22 | 0.90 | 0.14 | 0.14 | 3.50 | 3.63 | -24.1 | 30.1 | -0.03 | 0.118 | o,X |
| 07 39 19.561 | +30 43 14.83 | * | 17.74 | 17.83 | 0.09 | 0.12 | 0.33 | 4.72 | 4.90 | -25.8 | 31.8 | 1.04 | 0.792 | |
| 07 40 04.775 | +34 12 05.29 | * | 17.62 | 18.22 | 0.59 | 0.12 | 0.25 | 1.42 | 1.30 | -26.7 | 31.7 | 0.60 | 1.323 | |
| 07 40 11.663 | +25 37 28.03 | * | 16.87 | 17.18 | 0.31 | 0.13 | 0.50 | 5.70 | 5.73 | -27.6 | 32.3 | 0.79 | 1.272 | |
| 07 41 03.692 | +42 25 13.27 | * | 17.36 | 17.39 | 0.02 | 0.14 | 0.26 | 1.05 | 0.95 | -24.6 | 30.6 | 0.25 | 0.389 | |
| 07 41 10.698 | +31 12 00.31 | * | 16.44 | 16.50 | 0.06 | 0.13 | 0.26 | 2051.49 | 2071.27 | -26.6 | 34.3 | 3.15 | 0.631 | o |
| 07 42 05.862 | +35 15 03.98 | * | 17.80 | 18.86 | 1.06 | 0.19 | 0.13 | 24.11 | 25.18 | -26.1 | 33.0 | 2.10 | 1.355 | |
| 07 43 34.486 | +31 09 06.29 | * | 17.32 | 17.56 | 0.24 | 0.13 | 0.93 | 1.71 | 1.02 | -28.2 | 32.1 | 0.37 | 1.909 | |
| 07 43 52.023 | +27 12 39.79 | * | 15.72 | 15.64 | -0.08 | 0.12 | 0.22 | 1.02 | 0.81 | -25.4 | 30.2 | -0.44 | 0.252 | I |
| 07 44 10.474 | +41 17 33.85 | * | 17.63 | 17.78 | 0.15 | 0.12 | 0.60 | 51.66 | 61.83 | -27.4 | 33.5 | 2.05 | 1.460 | |
| 07 44 12.042 | +29 59 06.69 | * | 17.67 | 17.70 | 0.04 | 0.12 | 0.14 | 93.72 | 94.90 | -27.8 | 33.8 | 2.19 | 1.697 | P1 |
| 07 44 17.467 | +37 53 17.22 | * | 17.22 | 17.50 | 0.28 | 0.14 | 0.30 | 1113.79 | 1244.87 | -26.9 | 34.5 | 3.28 | 1.062 | o |
| 07 45 05.924 | +26 14 09.91 | * | 16.19 | 17.15 | 0.96 | 0.10 | 0.21 | 32.83 | 33.62 | -27.6 | 33.0 | 1.56 | 1.227 | |
| 07 45 41.659 | +31 42 56.52 | * | 15.26 | 15.30 | 0.04 | 0.18 | 0.56 | 614.67 | 632.74 | -27.1 | 33.5 | 2.18 | 0.459 | o,X |
| 07 45 59.311 | +33 13 34.52 | * | 17.59 | 17.64 | 0.06 | 0.14 | 0.10 | 98.52 | 126.82 | -25.4 | 33.0 | 2.40 | 0.608 | o |
| 07 46 04.904 | +29 22 50.92 | gE | 17.28 | 17.78 | 0.51 | 0.11 | 0.54 | 1.62 | 1.31 | -25.0 | 31.0 | 0.57 | 0.547 | P1 |
| 07 46 18.722 | +23 06 23.34 | * | 17.23 | 17.78 | 0.54 | 0.14 | 0.22 | 3.07 | 2.68 | -28.0 | 32.4 | 0.71 | 1.876 | |
| 07 49 20.007 | +23 41 04.37 | * | 17.07 | 18.27 | 1.20 | 0.17 | 0.26 | 2.06 | 1.48 | -23.1 | 30.6 | 0.91 | 0.295 | |
| 07 49 27.911 | +41 52 42.20 | * | 17.15 | 18.13 | 0.98 | 0.13 | 0.08 | 15.29 | 15.20 | -28.8 | 33.5 | 1.48 | 3.099 | |
| 07 49 48.175 | +34 54 43.76 | gO | 15.62 | 16.07 | 0.45 | 0.14 | 0.86 | 1.31 | 0.82 | -23.5 | 29.7 | -0.14 | 0.133 | o,X |
| 07 50 47.362 | +41 30 33.11 | * | 17.02 | 17.18 | 0.15 | 0.12 | 0.03 | 2.06 | 2.22 | -27.5 | 31.8 | 0.39 | 1.184 | |
| 07 51 12.354 | +29 19 37.30 | * | 15.29 | 15.55 | 0.27 | 0.11 | 1.15 | 1.00 | 1.16 | -28.5 | 31.3 | -0.51 | 0.912 | P1 |
| 07 52 45.634 | +26 17 35.12 | * | 15.93 | 16.82 | 0.89 | 0.09 | 0.67 | 1.13 | 1.27 | -21.7 | 29.3 | 0.16 | 0.082 | o,X |
| 07 54 48.829 | +30 33 55.13 | * | 17.11 | 17.54 | 0.43 | 0.15 | 0.47 | 44.75 | 46.47 | -26.2 | 32.8 | 1.90 | 0.796 | P1,X |
| 07 58 00.047 | +39 20 29.09 | gO | 13.90 | 13.87 | -0.03 | 0.18 | 0.13 | 10.80 | 11.56 | -25.0 | 30.4 | -0.06 | 0.095 | o,X,I |
| 07 58 13.948 | +26 24 18.75 | gE | 17.13 | 17.87 | 0.74 | 0.14 | 0.18 | 13.72 | 13.91 | -27.9 | 33.0 | 1.40 | 1.915 | |
| 07 59 28.298 | +30 10 28.97 | * | 17.18 | 17.74 | 0.56 | 0.16 | 0.65 | 161.38 | 182.20 | -26.5 | 33.6 | 2.55 | 0.999 | P1 |
| 08 04 09.242 | +38 53 48.71 | * | 16.82 | 17.90 | 1.08 | 0.14 | 0.12 | 2.88 | 2.68 | -22.7 | 30.5 | 0.92 | 0.211 | I |
| 08 04 13.671 | +25 16 34.07 | * | 17.39 | 18.09 | 0.70 | 0.08 | 0.36 | 3.48 | 3.68 | -28.2 | 32.6 | 0.89 | 2.302 | |
| 08 08 49.182 | +40 09 18.87 | * | 17.50 | 18.06 | 0.56 | 0.14 | 0.70 | 1.95 | 1.49 | -25.8 | 31.5 | 0.72 | 0.853 | |
| 08 08 56.647 | +40 52 44.92 | gE | 17.80 | 18.77 | 0.97 | 0.14 | 0.67 | 589.58 | 608.29 | -26.3 | 34.4 | 3.44 | 1.429 | o |
| 08 09 01.332 | +27 53 41.67 | * | 17.17 | 17.58 | 0.40 | 0.10 | 0.68 | 1.17 | 1.67 | -27.7 | 31.9 | 0.40 | 1.511 | HiBAL |
| 08 09 06.230 | +29 12 35.58 | * | 17.06 | 17.59 | 0.53 | 0.13 | 0.15 | 21.48 | 21.87 | -27.6 | 33.0 | 1.52 | 1.476 | P1 |
| 08 09 06.466 | +41 39 32.68 | * | 16.47 | 17.28 | 0.81 | 0.13 | 0.32 | 2.21 | 2.45 | -27.4 | 31.9 | 0.47 | 1.222 | o |
| 08 10 54.197 | +23 21 45.27 | * | 16.44 | 16.86 | 0.42 | 0.13 | 0.24 | 12.84 | 14.35 | -26.6 | 32.2 | 1.13 | 0.731 | |
| 08 11 30.749 | +39 04 10.26 | * | 17.43 | 18.00 | 0.57 | 0.13 | 0.73 | 1.62 | 1.82 | -27.4 | 32.0 | 0.59 | 1.647 | |
| 08 11 48.342 | +37 56 45.43 | * | 17.08 | 17.76 | 0.69 | 0.11 | 0.15 | 1.76 | 1.60 | -27.4 | 31.9 | 0.50 | 1.456 | |
| 08 12 40.683 | +32 08 08.51 | * | 17.66 | 18.55 | 0.89 | 0.12 | 0.39 | 18.32 | 18.41 | -28.1 | 33.4 | 1.74 | 2.705 | dmpL$\alpha$ |
| 08 14 09.215 | +32 37 31.88 | * | 17.73 | 18.15 | 0.42 | 0.13 | 0.44 | 126.85 | 136.64 | -25.7 | 33.3 | 2.60 | 0.846 | o |
| 08 14 15.054 | +41 23 23.44 | * | 17.54 | 18.21 | 0.67 | 0.12 | 0.06 | 5.15 | 4.65 | -26.6 | 32.3 | 1.16 | 1.295 | |
| 08 14 46.213 | +22 36 45.58 | * | 17.52 | 17.93 | 0.41 | 0.11 | 0.64 | 1.64 | 2.63 | -23.7 | 30.8 | 0.87 | 0.326 | |
| 08 15 20.657 | +27 36 16.90 | * | 15.97 | 16.40 | 0.44 | 0.09 | 0.00 | 3.62 | 3.15 | -27.6 | 31.8 | 0.32 | 0.908 | o,X |
| 08 17 38.344 | +24 23 30.05 | * | 16.40 | 16.96 | 0.56 | 0.11 | 0.31 | 5.02 | 4.45 | -24.3 | 31.0 | 0.77 | 0.282 | X |
| 08 17 40.150 | +23 27 31.60 | gE | 16.13 | 16.82 | 0.69 | 0.14 | 0.02 | 10.02 | 10.10 | -27.1 | 32.3 | 0.94 | 0.894 | |
| 08 18 49.231 | +38 34 16.44 | gE | 16.99 | 17.82 | 0.83 | 0.10 | 0.92 | 1.00 | 2.08 | -22.2 | 30.1 | 0.76 | 0.160 | |
| 08 21 07.619 | +31 07 51.40 | * | 16.58 | 16.98 | 0.40 | 0.11 | 0.20 | 85.41 | 89.98 | -29.6 | 34.1 | 1.81 | 2.620 | o |
| 08 23 46.003 | +41 04 04.07 | * | 16.97 | 17.07 | 0.10 | 0.12 | 0.55 | 1.01 | 1.30 | -26.6 | 31.3 | 0.16 | 0.794 | |

TABLE 2—*Continued*

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | $M_B$ (11) | log$L_R$ (12) | log$R^*$ (13) | z (14) | Notes (15) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 08 23 58.226 | +36 49 54.14 | gE | 17.74 | 18.44 | 0.71 | 0.14 | 0.24 | 13.64 | 13.64 | -26.5 | 32.7 | 1.67 | 1.365 | |
| 08 24 06.241 | +33 42 45.45 | * | 17.53 | 18.25 | 0.72 | 0.11 | 0.54 | 1.93 | 1.08 | -23.3 | 30.6 | 0.87 | 0.317 | |
| 08 24 38.971 | +40 57 08.19 | * | 17.09 | 17.24 | 0.14 | 0.13 | 0.37 | 87.01 | 174.72 | -25.8 | 33.2 | 2.38 | 0.613 | |
| 08 24 55.475 | +39 16 41.76 | * | 17.50 | 17.74 | 0.24 | 0.12 | 0.10 | 1403.96 | 1456.09 | -27.0 | 34.7 | 3.43 | 1.217 | o,X |
| 08 28 06.853 | +39 35 40.30 | gE | 17.64 | 17.95 | 0.31 | 0.10 | 0.42 | 4.59 | 5.11 | -25.6 | 31.8 | 1.11 | 0.760 | o |
| 08 30 52.076 | +24 10 59.85 | * | 16.30 | 17.09 | 0.79 | 0.09 | 0.07 | 835.48 | 885.66 | -27.0 | 34.2 | 2.98 | 0.940 | o,X |
| 08 32 25.342 | +37 07 36.64 | gE | 15.47 | 16.56 | 1.10 | 0.10 | 0.11 | 11.78 | 11.73 | -22.2 | 30.4 | 1.02 | 0.092 | o,X |
| 08 32 46.974 | +28 53 12.68 | gE | 17.04 | 17.84 | 0.79 | 0.11 | 0.94 | 1.64 | 1.73 | -22.9 | 30.3 | 0.67 | 0.226 | P1,X |
| 08 34 31.610 | +24 01 45.90 | * | 17.76 | 17.77 | 0.01 | 0.10 | 0.10 | 27.22 | 29.88 | -27.3 | 33.1 | 1.73 | 1.420 | |
| 08 35 35.820 | +24 59 40.65 | * | 15.76 | 16.04 | 0.28 | 0.08 | 0.53 | 1.84 | 1.76 | -25.6 | 30.7 | -0.04 | 0.330 | o |
| 08 36 22.895 | +27 28 52.49 | * | 17.49 | 17.42 | -0.07 | 0.11 | 0.62 | 300.48 | 304.39 | -26.2 | 33.6 | 2.67 | 0.761 | o |
| 08 36 36.885 | +41 25 54.87 | * | 17.25 | 17.81 | 0.55 | 0.10 | 0.13 | 424.23 | 443.13 | -27.1 | 34.2 | 2.93 | 1.298 | o,X |
| 08 37 40.261 | +24 54 23.00 | * | 17.40 | 17.80 | 0.41 | 0.11 | 0.29 | 422.63 | 446.21 | -26.7 | 34.1 | 2.95 | 1.125 | o |
| 08 40 44.457 | +36 33 28.41 | * | 16.20 | 17.53 | 1.34 | 0.10 | 0.43 | 1.63 | 1.00 | -27.2 | 31.7 | 0.39 | 1.230 | FeLoBAL |
| 08 41 18.087 | +35 44 39.02 | * | 16.18 | 16.88 | 0.70 | 0.10 | 0.21 | 6.01 | 5.66 | -28.7 | 32.6 | 0.65 | 1.780 | o |
| 08 43 10.772 | +39 53 45.13 | * | 17.24 | 18.11 | 0.87 | 0.09 | 0.16 | 2.57 | 2.17 | -24.0 | 31.0 | 0.92 | 0.400 | O(APS) |
| 08 44 37.984 | +41 24 32.12 | gE | 16.40 | 17.17 | 0.77 | 0.08 | 0.84 | 1.58 | 1.38 | -25.5 | 31.0 | 0.32 | 0.520 | |
| 08 47 15.181 | +38 31 10.13 | * | 17.70 | 18.86 | 1.15 | 0.08 | 0.33 | 184.89 | 185.49 | -28.2 | 34.6 | 2.85 | 3.172 | |
| 08 47 16.046 | +37 32 17.85 | * | 17.23 | 17.46 | 0.24 | 0.09 | 0.29 | 1.69 | 1.20 | -24.9 | 30.9 | 0.48 | 0.454 | o,X |
| 08 48 32.032 | +42 31 08.46 | * | 17.13 | 17.73 | 0.60 | 0.08 | 0.18 | 1.71 | 1.55 | -24.1 | 30.7 | 0.60 | 0.361 | |
| 08 49 02.577 | +30 02 34.86 | * | 16.35 | 16.54 | 0.20 | 0.10 | 0.66 | 1.02 | 1.26 | -26.7 | 31.1 | -0.05 | 0.660 | o |
| 08 53 17.834 | +28 13 49.95 | * | 17.22 | 17.61 | 0.39 | 0.11 | 0.11 | 71.73 | 72.97 | -26.4 | 33.1 | 2.11 | 0.921 | o |
| 08 57 21.069 | +36 38 45.20 | * | 17.40 | 17.59 | 0.19 | 0.08 | 0.82 | 1.09 | 0.78 | -24.8 | 30.7 | 0.34 | 0.450 | |
| 08 57 26.954 | +33 13 17.24 | * | 17.08 | 17.43 | 0.36 | 0.07 | 0.29 | 20.69 | 21.29 | -28.9 | 33.4 | 1.38 | 2.338 | |
| 09 00 07.973 | +36 46 10.77 | * | 16.80 | 17.04 | 0.24 | 0.10 | 0.30 | 2.67 | 2.38 | -25.6 | 31.2 | 0.50 | 0.516 | |
| 09 00 33.493 | +42 15 46.48 | * | 16.70 | 17.69 | 0.99 | 0.07 | 0.64 | 1.52 | 1.71 | -29.4 | 32.6 | 0.34 | 3.290 | E(APS) |
| 09 02 39.895 | +39 57 26.77 | * | 17.73 | 18.55 | 0.82 | 0.05 | 0.07 | 32.00 | 32.35 | -28.4 | 33.8 | 1.97 | 3.086 | |
| 09 03 13.910 | +31 20 15.83 | * | 17.57 | 17.92 | 0.35 | 0.06 | 0.23 | 1.73 | 1.26 | -24.8 | 31.0 | 0.66 | 0.518 | |
| 09 03 25.620 | +22 41 48.10 | * | 17.63 | 19.38 | 1.75 | 0.08 | 0.40 | 1.29 | 0.84 | -22.0 | 30.4 | 1.15 | 0.290 | I |
| 09 04 29.630 | +28 19 32.83 | * | 16.86 | 16.87 | 0.02 | 0.08 | 0.03 | 34.28 | 39.24 | -27.6 | 33.0 | 1.52 | 1.120 | o |
| 09 04 44.337 | +23 33 54.05 | * | 16.87 | 17.20 | 0.33 | 0.08 | 0.10 | 105.35 | 107.31 | -29.0 | 34.1 | 2.00 | 2.244 | o |
| 09 05 41.757 | +28 49 28.22 | * | 17.46 | 17.64 | 0.18 | 0.08 | 0.05 | 190.44 | 195.06 | -27.1 | 33.8 | 2.52 | 1.219 | |
| 09 08 38.808 | +32 46 20.47 | gE | 17.54 | 17.86 | 0.32 | 0.05 | 0.61 | 1.25 | 0.88 | -23.2 | 30.3 | 0.53 | 0.259 | |
| 09 09 47.293 | +30 24 03.01 | * | 17.66 | 17.57 | -0.09 | 0.07 | 0.50 | 8.57 | 17.49 | -26.1 | 32.4 | 1.49 | 0.784 | |
| 09 09 47.827 | +31 24 43.41 | * | 16.64 | 17.56 | 0.93 | 0.06 | 0.26 | 1.81 | 1.50 | -23.6 | 30.5 | 0.57 | 0.266 | |
| 09 10 44.902 | +26 12 53.71 | * | 17.78 | 19.26 | 1.48 | 0.09 | 0.11 | 7.84 | 7.46 | -27.6 | 33.1 | 1.65 | 2.920 | HiBAL |
| 09 10 54.184 | +37 59 15.11 | * | 17.22 | 17.20 | -0.02 | 0.06 | 0.04 | 250.93 | 265.93 | -28.9 | 34.4 | 2.40 | 2.158 | o,new *z* |
| 09 10 55.239 | +25 39 21.58 | * | 17.38 | 18.18 | 0.81 | 0.10 | 0.11 | 202.60 | 207.22 | -28.5 | 34.5 | 2.65 | 2.743 | |
| 09 12 06.976 | +39 11 46.25 | * | 17.63 | 18.04 | 0.41 | 0.04 | 0.21 | 16.98 | 17.80 | -27.5 | 33.1 | 1.59 | 1.737 | |
| 09 12 47.806 | +28 54 06.56 | gE | 16.74 | 17.43 | 0.70 | 0.07 | 0.37 | 1.22 | 0.88 | -22.9 | 30.0 | 0.37 | 0.183 | P1,X |
| 09 13 28.260 | +39 44 44.17 | * | 17.16 | 17.99 | 0.83 | 0.05 | 0.19 | 2.06 | 2.09 | -27.4 | 32.1 | 0.65 | 1.580 | HiBAL |
| 09 18 06.472 | +30 24 06.81 | * | 17.63 | 17.95 | 0.31 | 0.06 | 0.66 | 2.00 | 2.01 | -24.8 | 31.1 | 0.73 | 0.538 | |
| 09 18 58.154 | +23 25 55.43 | * | 16.80 | 17.20 | 0.40 | 0.17 | 0.14 | 26.70 | 27.00 | -26.1 | 32.5 | 1.54 | 0.688 | |
| 09 19 54.289 | +29 14 08.55 | * | 17.46 | 17.64 | 0.17 | 0.06 | 0.11 | 8.10 | 8.33 | -25.8 | 32.0 | 1.20 | 0.720 | P1 |
| 09 21 04.452 | +30 20 31.04 | gE | 17.68 | 19.13 | 1.45 | 0.06 | 0.52 | 3.99 | 4.33 | -28.0 | 33.0 | 1.31 | 3.344 | |
| 09 22 11.008 | +22 36 41.65 | * | 17.64 | 17.99 | 0.35 | 0.10 | 0.39 | 8.83 | 9.41 | -27.5 | 32.7 | 1.30 | 1.645 | |
| 09 23 35.466 | +31 24 09.01 | * | 17.32 | 17.56 | 0.24 | 0.05 | 0.39 | 4.11 | 3.35 | -26.8 | 32.0 | 0.83 | 1.032 | |
| 09 24 25.030 | +35 47 12.79 | * | 17.74 | 18.01 | 0.26 | 0.04 | 0.24 | 13.08 | 13.27 | -26.9 | 32.7 | 1.48 | 1.344 | |
| 09 25 54.719 | +40 04 14.18 | * | 17.09 | 17.23 | 0.14 | 0.03 | 0.20 | 9.16 | 9.30 | -25.2 | 31.7 | 1.12 | 0.471 | X |
| 09 29 13.940 | +37 57 42.99 | * | 17.61 | 17.91 | 0.30 | 0.04 | 0.12 | 43.19 | 43.43 | -27.9 | 33.5 | 1.91 | 1.915 | |
| 09 32 55.471 | +28 40 36.52 | * | 16.61 | 16.66 | 0.05 | 0.05 | 0.34 | 1.40 | 0.94 | -26.1 | 31.0 | 0.06 | 0.543 | o |
| 09 33 11.637 | +35 16 27.90 | * | 17.49 | 18.03 | 0.53 | 0.04 | 0.12 | 4.85 | 4.97 | -26.5 | 32.1 | 1.09 | 1.121 | |
| 09 33 24.620 | +22 22 38.11 | * | 17.78 | 18.25 | 0.47 | 0.08 | 0.11 | 4.26 | 3.91 | -23.7 | 31.2 | 1.20 | 0.385 | |
| 09 33 29.584 | +24 56 48.73 | * | 17.64 | 19.56 | 1.92 | 0.06 | 0.38 | 2.20 | 2.44 | -27.4 | 32.7 | 1.25 | 3.071 | |
| 09 33 37.298 | +28 45 32.24 | * | 17.45 | 18.52 | 1.07 | 0.05 | 0.25 | 119.85 | 120.71 | -28.7 | 34.4 | 2.51 | 3.425 | P1,dmpL$\alpha$ |
| 09 34 03.978 | +31 53 31.47 | * | 17.43 | 17.83 | 0.39 | 0.05 | 0.24 | 4.68 | 4.41 | -28.5 | 32.8 | 0.88 | 2.419 | HiBAL |
| 09 34 07.306 | +35 42 38.21 | * | 17.19 | 17.89 | 0.70 | 0.04 | 0.16 | 3.87 | 5.75 | -26.6 | 32.2 | 1.10 | 1.097 | |
| 09 34 47.566 | +29 02 30.65 | * | 17.79 | 17.83 | 0.03 | 0.05 | 0.14 | 20.93 | 21.55 | -26.7 | 32.8 | 1.64 | 1.113 | |
| 09 35 31.668 | +35 41 00.97 | * | 17.08 | 17.56 | 0.48 | 0.04 | 0.67 | 1.54 | 2.10 | -25.0 | 31.1 | 0.60 | 0.492 | |
| 09 36 03.893 | +32 07 09.31 | * | 17.17 | 17.33 | 0.16 | 0.05 | 0.18 | 27.45 | 28.30 | -27.2 | 32.9 | 1.56 | 1.151 | |
| 09 36 21.508 | +39 21 32.00 | gE | 16.95 | 17.96 | 1.01 | 0.04 | 0.32 | 27.15 | 28.51 | -22.6 | 31.5 | 1.94 | 0.210 | |
| 09 37 03.014 | +36 15 37.35 | gE | 16.38 | 17.44 | 1.06 | 0.04 | 0.14 | 3.60 | 3.21 | -22.8 | 30.4 | 0.84 | 0.180 | X,I |
| 09 37 04.050 | +29 37 04.91 | * | 17.28 | 17.63 | 0.35 | 0.05 | 0.21 | 2.45 | 2.65 | -24.7 | 31.1 | 0.74 | 0.452 | P1 |
| 09 41 46.901 | +35 30 36.48 | * | 17.65 | 18.32 | 0.67 | 0.03 | 0.30 | 1.12 | 0.93 | -22.0 | 30.0 | 0.68 | 0.188 | |
| 09 41 49.668 | +41 21 04.57 | * | 17.72 | 18.73 | 1.01 | 0.05 | 0.06 | 62.16 | 63.30 | -25.0 | 33.0 | 2.51 | 0.819 | |
| 09 42 58.054 | +40 10 14.22 | * | 16.77 | 17.57 | 0.80 | 0.05 | 0.61 | 1.73 | 2.02 | -26.7 | 31.7 | 0.52 | 1.013 | |
| 09 43 11.136 | +29 38 04.83 | * | 17.23 | 17.82 | 0.60 | 0.06 | 0.23 | 1.04 | 0.91 | -27.8 | 31.8 | 0.27 | 1.774 | P1 |
| 09 43 24.328 | +28 35 40.19 | * | 17.78 | 18.14 | 0.36 | 0.05 | 0.11 | 1.39 | 2.12 | -24.3 | 31.0 | 0.85 | 0.461 | |
| 09 44 18.876 | +23 31 19.98 | * | 17.22 | 18.19 | 0.97 | 0.07 | 0.22 | 11.16 | 11.86 | -26.0 | 32.4 | 1.54 | 0.987 | |
| 09 44 39.002 | +22 52 09.96 | * | 17.24 | 18.54 | 1.30 | 0.08 | 0.65 | 1.25 | 1.83 | -20.7 | 29.7 | 1.00 | 0.116 | |
| 09 46 02.299 | +27 44 07.04 | * | 16.89 | 17.65 | 0.76 | 0.06 | 0.33 | 3.54 | 3.63 | -27.9 | 32.4 | 0.74 | 1.748 | HiBAL |

TABLE 2—*Continued*

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | $M_B$ (11) | $\log L_R$ (12) | $\log R^*$ (13) | z (14) | Notes (15) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 09 46 10.958 | +32 23 26.23 | * | 16.92 | 17.21 | 0.28 | 0.05 | 0.41 | 1.41 | 1.56 | -24.9 | 30.8 | 0.34 | 0.403 | |
| 09 46 44.719 | +41 43 04.33 | * | 17.18 | 18.15 | 0.97 | 0.04 | 0.39 | 26.33 | 31.69 | -26.1 | 32.9 | 1.95 | 1.018 | o |
| 09 46 47.090 | +23 27 51.25 | * | 17.26 | 18.29 | 1.03 | 0.08 | 0.31 | 1.01 | 1.18 | -28.3 | 32.2 | 0.45 | 2.611 | |
| 09 47 12.039 | +34 51 19.60 | * | 16.86 | 17.58 | 0.71 | 0.03 | 0.28 | 1.04 | 1.20 | -27.6 | 31.7 | 0.26 | 1.453 | |
| 09 48 55.357 | +40 39 44.67 | * | 16.98 | 17.57 | 0.59 | 0.04 | 0.08 | 1439.97 | 1537.07 | -27.2 | 34.7 | 3.38 | 1.247 | o |
| 09 49 27.680 | +31 41 09.96 | * | 15.79 | 16.73 | 0.94 | 0.06 | 0.34 | 28.12 | 28.52 | -24.7 | 31.8 | 1.43 | 0.309 | I |
| 09 51 22.539 | +26 35 14.11 | * | 16.20 | 16.24 | 0.04 | 0.06 | 0.59 | 1.48 | 2.03 | -28.5 | 31.8 | -0.03 | 1.245 | grav.lens |
| 09 51 59.986 | +22 09 06.15 | gO | 16.85 | 17.63 | 0.78 | 0.10 | 0.26 | 1.16 | 1.11 | -23.1 | 30.1 | 0.42 | 0.220 | X |
| 09 52 06.385 | +23 52 45.27 | gO | 16.57 | 16.77 | 0.20 | 0.08 | 0.12 | 32.49 | 34.61 | -27.4 | 32.9 | 1.44 | 0.970 | |
| 09 52 27.207 | +22 40 06.16 | * | 16.67 | 17.17 | 0.50 | 0.08 | 0.67 | 18.13 | 19.83 | -27.5 | 32.8 | 1.34 | 1.213 | |
| 09 53 27.957 | +32 25 51.62 | * | 16.62 | 16.83 | 0.21 | 0.03 | 0.04 | 128.43 | 131.85 | -28.5 | 33.8 | 1.99 | 1.574 | o,new pos |
| 09 53 31.656 | +39 17 29.74 | * | 16.87 | 17.49 | 0.62 | 0.03 | 0.59 | 4.97 | 4.45 | -26.5 | 32.0 | 0.89 | 0.917 | |
| 09 55 37.936 | +33 35 03.97 | * | 17.03 | 17.16 | 0.13 | 0.04 | 0.12 | 35.73 | 36.61 | -29.3 | 33.7 | 1.50 | 2.499 | o,dmpL$\alpha$ |
| 09 55 55.663 | +35 16 52.89 | * | 17.13 | 17.36 | 0.23 | 0.03 | 0.36 | 9.28 | 9.71 | -28.0 | 32.7 | 1.07 | 1.620 | |
| 09 56 49.873 | +25 15 15.96 | * | 16.11 | 16.93 | 0.82 | 0.10 | 0.25 | 1041.77 | 1069.98 | -26.5 | 34.1 | 3.03 | 0.709 | o |
| 09 57 07.367 | +23 56 25.32 | * | 17.63 | 18.47 | 0.84 | 0.09 | 0.01 | 136.10 | 140.49 | -27.4 | 34.1 | 2.64 | 1.995 | HiBAL |
| 09 58 20.940 | +32 24 02.17 | * | 15.74 | 15.56 | -0.18 | 0.04 | 0.34 | 1204.19 | 1228.71 | -27.2 | 33.9 | 2.56 | 0.533 | o |
| 09 59 05.550 | +24 06 14.52 | * | 16.95 | 18.05 | 1.10 | 0.10 | 0.10 | 14.55 | 14.85 | -27.1 | 32.8 | 1.54 | 1.469 | |
| 09 59 30.513 | +30 07 34.57 | * | 17.60 | 17.46 | -0.13 | 0.05 | 0.10 | 3.41 | 3.40 | -25.3 | 31.4 | 0.77 | 0.544 | |
| 10 00 29.158 | +27 52 12.08 | * | 17.64 | 17.98 | 0.33 | 0.05 | 0.16 | 79.49 | 82.16 | -26.7 | 33.4 | 2.28 | 1.202 | |
| 10 02 08.123 | +34 53 53.78 | * | 16.79 | 18.21 | 1.42 | 0.03 | 0.19 | 5.58 | 5.30 | -22.3 | 30.7 | 1.33 | 0.205 | |
| 10 02 54.540 | +32 40 38.93 | * | 16.97 | 16.89 | -0.08 | 0.04 | 0.50 | 9.09 | 9.00 | -26.9 | 32.1 | 0.93 | 0.830 | o |
| 10 03 18.941 | +27 27 34.51 | * | 17.32 | 17.84 | 0.52 | 0.06 | 0.53 | 6.75 | 6.76 | -27.0 | 32.4 | 1.13 | 1.283 | |
| 10 04 10.197 | +37 28 48.08 | * | 17.59 | 17.77 | 0.18 | 0.04 | 0.80 | 1.15 | 0.96 | -25.7 | 31.1 | 0.39 | 0.740 | |
| 10 04 42.904 | +24 22 26.02 | * | 16.72 | 17.53 | 0.80 | 0.10 | 0.21 | 19.92 | 19.79 | -27.3 | 32.8 | 1.48 | 1.255 | |
| 10 04 45.746 | +22 25 19.38 | * | 17.00 | 18.02 | 1.02 | 0.11 | 0.15 | 33.93 | 36.95 | -26.2 | 32.9 | 1.97 | 0.979 | o,X |
| 10 05 07.905 | +34 14 24.12 | gE | 16.36 | 16.90 | 0.54 | 0.03 | 0.34 | 3.40 | 2.66 | -23.1 | 30.3 | 0.60 | 0.162 | X |
| 10 05 22.980 | +40 58 34.46 | * | 16.67 | 17.85 | 1.18 | 0.03 | 0.32 | 1.29 | 1.07 | -23.7 | 30.5 | 0.53 | 0.317 | X |
| 10 06 42.628 | +27 01 15.30 | * | 17.17 | 17.29 | 0.11 | 0.08 | 0.12 | 13.83 | 13.30 | -25.5 | 32.0 | 1.30 | 0.549 | |
| 10 08 41.247 | +36 23 19.26 | * | 16.93 | 17.85 | 0.93 | 0.03 | 0.07 | 33.01 | 34.77 | -29.1 | 33.8 | 1.72 | 3.125 | dmpL$\alpha$ |
| 10 10 00.711 | +30 03 21.52 | * | 16.13 | 16.48 | 0.35 | 0.07 | 0.10 | 1.54 | 0.99 | -24.6 | 30.4 | 0.07 | 0.255 | o,X |
| 10 10 27.525 | +41 32 38.91 | * | 16.09 | 16.23 | 0.14 | 0.04 | 0.29 | 258.74 | 340.26 | -26.8 | 33.5 | 2.26 | 0.613 | o,X |
| 10 12 11.434 | +33 09 25.96 | * | 17.26 | 17.30 | 0.04 | 0.05 | 0.73 | 172.71 | 196.33 | -28.9 | 34.3 | 2.30 | 2.260 | o |
| 10 12 44.373 | +35 53 47.90 | * | 17.45 | 18.07 | 0.62 | 0.03 | 0.40 | 26.45 | 27.61 | -26.2 | 32.8 | 1.86 | 1.022 | |
| 10 13 02.287 | +35 26 05.47 | * | 17.49 | 18.00 | 0.51 | 0.03 | 0.19 | 208.11 | 208.02 | -28.6 | 34.5 | 2.58 | 2.642 | |
| 10 13 25.429 | +22 12 29.03 | * | 17.00 | 17.67 | 0.67 | 0.07 | 0.27 | 1.09 | 1.08 | -23.5 | 30.3 | 0.39 | 0.273 | X,I |
| 10 13 53.421 | +24 49 16.37 | * | 15.92 | 16.65 | 0.73 | 0.11 | 0.37 | 500.27 | 517.34 | -28.8 | 34.5 | 2.51 | 1.634 | o,X |
| 10 15 05.682 | +36 04 52.63 | * | 17.16 | 17.70 | 0.54 | 0.03 | 0.08 | 29.51 | 29.85 | -26.1 | 32.7 | 1.76 | 0.846 | |
| 10 17 52.685 | +32 42 34.81 | * | 17.73 | 17.61 | -0.12 | 0.04 | 0.26 | 3.28 | 3.20 | -28.4 | 32.5 | 0.66 | 2.127 | |
| 10 18 10.996 | +35 42 39.71 | * | 17.43 | 18.09 | 0.66 | 0.03 | 0.56 | 571.31 | 582.58 | -26.6 | 34.3 | 3.17 | 1.231 | o |
| 10 18 25.444 | +38 05 32.64 | * | 17.43 | 17.23 | -0.20 | 0.04 | 0.42 | 32.69 | 34.78 | -24.8 | 32.1 | 1.71 | 0.385 | o,X |
| 10 18 58.491 | +34 36 32.17 | gO | 15.75 | 16.61 | 0.86 | 0.04 | 0.85 | 2.27 | 2.44 | -22.5 | 29.8 | 0.35 | 0.109 | |
| 10 20 41.170 | +39 58 10.87 | * | 17.74 | 18.73 | 0.99 | 0.04 | 0.88 | 2.71 | 2.38 | -25.0 | 31.6 | 1.14 | 0.826 | |
| 10 21 17.509 | +34 37 21.93 | * | 16.82 | 17.05 | 0.23 | 0.04 | 0.35 | 317.10 | 392.03 | -28.0 | 34.2 | 2.57 | 1.407 | o |
| 10 21 56.523 | +30 01 40.62 | * | 17.03 | 18.76 | 1.73 | 0.07 | 0.39 | 1.43 | 1.41 | -28.2 | 32.4 | 0.70 | 3.115 | P1,dmpL$\alpha$ |
| 10 22 30.318 | +30 41 05.19 | * | 16.80 | 17.46 | 0.66 | 0.07 | 0.22 | 907.01 | 919.28 | -27.4 | 34.5 | 3.11 | 1.320 | o |
| 10 22 37.416 | +39 31 50.54 | * | 16.40 | 17.15 | 0.75 | 0.04 | 0.26 | 41.28 | 57.53 | -25.9 | 32.7 | 1.86 | 0.607 | o |
| 10 23 11.597 | +39 48 15.94 | * | 16.90 | 17.51 | 0.61 | 0.04 | 1.11 | 807.88 | 1078.67 | -27.3 | 34.6 | 3.21 | 1.252 | o,X |
| 10 23 22.305 | +36 39 12.60 | * | 17.56 | 18.08 | 0.52 | 0.03 | 0.16 | 8.29 | 8.31 | -24.7 | 31.7 | 1.40 | 0.549 | |
| 10 23 33.511 | +39 53 12.52 | * | 17.35 | 17.98 | 0.63 | 0.03 | 0.90 | 62.13 | 65.13 | -26.9 | 33.4 | 2.16 | 1.330 | |
| 10 25 53.597 | +40 12 43.49 | gE | 16.15 | 17.11 | 0.96 | 0.03 | 0.65 | 1.07 | 0.82 | -25.0 | 30.6 | 0.14 | 0.406 | o,X |
| 10 26 17.468 | +30 36 43.01 | * | 17.09 | 18.33 | 1.24 | 0.05 | 0.08 | 1.74 | 1.82 | -23.4 | 30.7 | 0.87 | 0.340 | P1,I |
| 10 28 37.788 | +26 23 59.08 | * | 17.48 | 18.31 | 0.84 | 0.06 | 0.52 | 3.03 | 2.54 | -27.7 | 32.4 | 0.91 | 2.071 | |
| 10 30 45.236 | +25 55 22.06 | * | 16.16 | 17.14 | 0.97 | 0.05 | 0.42 | 47.56 | 49.15 | -26.2 | 32.7 | 1.78 | 0.691 | |
| 10 30 59.104 | +31 02 55.74 | gE | 15.37 | 16.27 | 0.90 | 0.05 | 0.11 | 58.74 | 63.45 | -24.0 | 31.7 | 1.62 | 0.178 | o,X |
| 10 31 10.647 | +39 53 22.81 | * | 17.73 | 18.66 | 0.92 | 0.03 | 0.53 | 2.45 | 2.03 | -25.8 | 31.8 | 1.04 | 1.082 | LoBAL |
| 10 33 03.732 | +41 16 06.32 | * | 17.65 | 18.44 | 0.79 | 0.04 | 0.12 | 406.68 | 432.65 | -26.1 | 34.1 | 3.19 | 1.120 | o |
| 10 33 59.483 | +35 55 09.48 | gE | 16.02 | 16.45 | 0.43 | 0.06 | 0.86 | 2.06 | 2.23 | -23.7 | 30.2 | 0.24 | 0.169 | I |
| 10 35 10.984 | +35 10 19.51 | * | 17.33 | 17.10 | -0.23 | 0.06 | 0.28 | 23.03 | 22.88 | -28.8 | 33.3 | 1.31 | 1.955 | |
| 10 35 11.672 | +34 06 25.10 | * | 17.68 | 17.71 | 0.03 | 0.05 | 0.96 | 34.87 | 36.63 | -25.6 | 32.6 | 1.88 | 0.680 | |
| 10 35 51.191 | +37 56 41.50 | * | 16.41 | 16.29 | -0.12 | 0.05 | 1.09 | 52.76 | 54.26 | -28.9 | 33.4 | 1.39 | 1.508 | |
| 10 36 41.942 | +25 02 36.63 | * | 16.87 | 17.57 | 0.70 | 0.06 | 0.07 | 97.26 | 118.51 | -28.4 | 34.0 | 2.20 | 2.004 | |
| 10 36 48.486 | +37 03 07.71 | gO | 17.79 | 17.50 | -0.29 | 0.04 | 0.77 | 26.23 | 26.71 | -27.9 | 33.2 | 1.56 | 1.592 | |
| 10 38 48.147 | +37 29 24.39 | * | 17.10 | 17.14 | 0.04 | 0.05 | 0.93 | 17.47 | 17.46 | -26.3 | 32.3 | 1.32 | 0.730 | |
| 10 38 53.331 | +39 21 50.43 | gE | 16.93 | 18.92 | 1.99 | 0.06 | 0.93 | 1.19 | 1.43 | -18.7 | 29.0 | 1.06 | 0.055 | |
| 10 38 59.593 | +42 27 42.04 | * | 17.46 | 18.67 | 1.22 | 0.04 | 0.23 | 2.76 | 2.44 | -22.0 | 30.5 | 1.21 | 0.220 | |
| 10 39 41.964 | +24 22 40.33 | * | 17.63 | 18.64 | 1.00 | 0.06 | 0.27 | 53.61 | 116.94 | -26.0 | 33.5 | 2.70 | 1.173 | |
| 10 42 29.180 | +38 11 11.32 | * | 17.55 | 17.96 | 0.41 | 0.06 | 0.19 | 11.39 | 11.80 | -28.6 | 33.2 | 1.32 | 2.638 | |
| 10 44 59.591 | +36 56 05.39 | * | 16.51 | 17.23 | 0.72 | 0.04 | 0.30 | 14.61 | 15.00 | -26.2 | 32.2 | 1.30 | 0.701 | FeLoBAL |
| 10 45 56.863 | +27 17 59.54 | * | 17.17 | 17.86 | 0.68 | 0.09 | 0.09 | 8.74 | 9.86 | -26.7 | 32.4 | 1.32 | 1.128 | |
| 10 46 20.192 | +34 27 08.32 | * | 17.05 | 17.24 | 0.19 | 0.05 | 0.16 | 35.95 | 35.93 | -27.4 | 33.1 | 1.63 | 1.198 | |

TABLE 2—*Continued*

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | $M_B$ (11) | $\log L_R$ (12) | $\log R^*$ (13) | z (14) | Notes (15) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 48 17.926 | +31 29 06.36 | * | 16.66 | 17.60 | 0.93 | 0.08 | 0.71 | 1.56 | 1.67 | -24.8 | 30.9 | 0.52 | 0.450 | |
| 10 48 20.129 | +30 26 27.10 | * | 17.54 | 18.22 | 0.68 | 0.09 | 0.19 | 2.66 | 2.49 | -23.8 | 31.0 | 0.99 | 0.388 | |
| 10 48 32.411 | +29 06 43.82 | * | 17.47 | 18.65 | 1.17 | 0.07 | 0.01 | 32.86 | 33.01 | -24.8 | 32.6 | 2.20 | 0.729 | |
| 10 50 27.466 | +35 09 20.58 | * | 17.72 | 17.81 | 0.08 | 0.05 | 0.22 | 1.51 | 0.97 | -26.6 | 31.6 | 0.49 | 1.062 | |
| 10 51 13.634 | +38 50 15.42 | gE | 17.40 | 18.43 | 1.03 | 0.04 | 0.83 | 4.95 | 5.53 | -22.2 | 30.8 | 1.42 | 0.216 | X |
| 10 52 03.168 | +24 05 05.03 | * | 17.00 | 17.95 | 0.95 | 0.10 | 0.21 | 10.35 | 10.27 | -24.1 | 31.6 | 1.47 | 0.398 | |
| 10 52 50.084 | +33 55 05.00 | * | 16.70 | 16.89 | 0.19 | 0.05 | 0.23 | 12.81 | 13.41 | -28.2 | 32.8 | 1.04 | 1.408 | |
| 10 54 03.223 | +41 52 56.83 | * | 17.44 | 18.20 | 0.76 | 0.04 | 0.83 | 1.00 | 1.29 | -26.2 | 31.5 | 0.57 | 1.089 | |
| 10 54 26.370 | +26 36 32.69 | * | 17.78 | 18.47 | 0.69 | 0.06 | 0.44 | 1.73 | 1.53 | -27.7 | 32.3 | 0.71 | 2.255 | |
| 10 54 26.573 | +27 03 17.48 | * | 17.44 | 18.07 | 0.63 | 0.06 | 0.43 | 47.40 | 52.59 | -27.0 | 33.3 | 2.10 | 1.402 | |
| 10 54 27.150 | +25 36 00.33 | * | 16.93 | 18.38 | 1.45 | 0.07 | 0.58 | 2.99 | 3.02 | -28.0 | 32.6 | 0.91 | 2.400 | LoBAL |
| 10 55 18.452 | +39 29 05.36 | gE | 16.82 | 17.56 | 0.74 | 0.04 | 0.28 | 2.79 | 3.15 | -23.5 | 30.7 | 0.82 | 0.253 | |
| 10 55 28.808 | +31 24 11.65 | * | 16.99 | 18.67 | 1.68 | 0.08 | 0.26 | 9.07 | 9.06 | -23.9 | 31.7 | 1.68 | 0.492 | |
| 10 55 43.932 | +29 49 17.91 | * | 17.37 | 17.79 | 0.42 | 0.05 | 0.77 | 13.99 | 15.18 | -27.3 | 32.8 | 1.45 | 1.430 | |
| 10 56 11.799 | +31 56 16.34 | * | 17.58 | 18.00 | 0.42 | 0.07 | 0.84 | 10.40 | 11.10 | -27.2 | 32.7 | 1.39 | 1.510 | |
| 10 56 48.171 | +37 04 50.78 | * | 16.82 | 17.37 | 0.55 | 0.05 | 0.78 | 19.43 | 20.90 | -24.6 | 31.8 | 1.54 | 0.387 | |
| 10 57 05.160 | +31 19 07.79 | * | 17.53 | 18.49 | 0.96 | 0.07 | 0.33 | 13.84 | 14.87 | -26.4 | 32.8 | 1.73 | 1.332 | |
| 10 58 34.374 | +31 36 56.28 | * | 17.48 | 18.55 | 1.07 | 0.08 | 0.57 | 1.45 | 1.29 | -27.9 | 32.3 | 0.65 | 2.490 | |
| 10 59 51.914 | +40 51 13.70 | * | 17.44 | 17.75 | 0.31 | 0.03 | 0.70 | 107.39 | 117.78 | -27.8 | 33.9 | 2.29 | 1.746 | |
| 11 00 01.081 | +23 14 12.53 | * | 16.99 | 17.81 | 0.82 | 0.05 | 0.92 | 11.82 | 15.23 | -25.0 | 32.0 | 1.55 | 0.559 | |
| 11 00 26.082 | +23 03 41.31 | * | 17.45 | 18.19 | 0.74 | 0.04 | 0.51 | 1.57 | 1.61 | -27.3 | 32.0 | 0.61 | 1.674 | |
| 11 02 11.882 | +28 40 41.49 | gE | 16.50 | 17.45 | 0.96 | 0.07 | 0.55 | 46.17 | 48.36 | -28.1 | 33.5 | 1.79 | 1.741 | P1 |
| 11 02 23.364 | +22 39 20.72 | * | 17.21 | 18.78 | 1.57 | 0.06 | 0.17 | 2.05 | 1.79 | -23.6 | 31.0 | 1.09 | 0.453 | |
| 11 03 13.315 | +30 14 42.29 | * | 17.35 | 17.70 | 0.35 | 0.04 | 0.70 | 107.68 | 108.99 | -24.3 | 32.6 | 2.39 | 0.387 | o,X |
| 11 03 40.267 | +37 29 25.30 | gE | 15.66 | 17.20 | 1.53 | 0.04 | 0.39 | 5.33 | 5.42 | -21.1 | 29.8 | 0.94 | 0.074 | |
| 11 06 05.665 | +30 51 08.72 | * | 16.49 | 17.15 | 0.66 | 0.06 | 0.20 | 1.69 | 1.92 | -28.3 | 32.0 | 0.28 | 1.638 | P1 |
| 11 07 04.537 | +32 06 30.06 | * | 16.56 | 17.18 | 0.62 | 0.07 | 0.21 | 3.03 | 2.82 | -23.8 | 30.6 | 0.65 | 0.243 | o |
| 11 08 38.321 | +25 55 21.58 | * | 17.71 | 17.91 | 0.21 | 0.05 | 0.23 | 10.87 | 10.31 | -25.5 | 32.1 | 1.43 | 0.718 | |
| 11 09 37.547 | +40 42 03.26 | gE | 17.79 | 18.70 | 0.91 | 0.05 | 0.29 | 1.90 | 1.70 | -23.3 | 30.8 | 1.03 | 0.382 | |
| 11 10 40.226 | +30 19 09.81 | * | 17.31 | 17.98 | 0.67 | 0.06 | 0.41 | 20.08 | 22.77 | -27.3 | 33.1 | 1.69 | 1.522 | P1 |
| 11 10 50.517 | +23 25 09.38 | * | 17.62 | 18.37 | 0.76 | 0.04 | 0.49 | 1.14 | 0.88 | -25.5 | 31.3 | 0.62 | 0.849 | |
| 11 12 02.886 | +23 00 38.12 | * | 17.75 | 17.89 | 0.14 | 0.04 | 0.16 | 25.67 | 26.01 | -27.2 | 33.1 | 1.72 | 1.437 | |
| 11 12 23.301 | +24 06 48.17 | * | 17.55 | 18.25 | 0.70 | 0.04 | 0.17 | 15.32 | 17.27 | -26.4 | 32.7 | 1.71 | 1.178 | |
| 11 15 04.226 | +25 11 00.51 | * | 17.25 | 17.27 | 0.02 | 0.04 | 0.14 | 2.25 | 1.94 | -26.9 | 31.7 | 0.46 | 0.982 | |
| 11 15 49.856 | +22 38 52.86 | * | 17.72 | 18.17 | 0.45 | 0.04 | 0.16 | 7.75 | 7.17 | -27.5 | 32.7 | 1.28 | 1.829 | |
| 11 16 28.313 | +22 31 19.75 | * | 17.33 | 17.65 | 0.32 | 0.04 | 0.49 | 2.39 | 2.21 | -26.2 | 31.6 | 0.65 | 0.842 | |
| 11 16 35.788 | +34 19 14.41 | * | 17.70 | 18.15 | 0.45 | 0.05 | 0.16 | 10.44 | 10.57 | -26.5 | 32.5 | 1.46 | 1.188 | |
| 11 19 03.290 | +38 58 52.43 | * | 17.78 | 18.12 | 0.35 | 0.05 | 0.43 | 11.81 | 11.75 | -25.4 | 32.1 | 1.55 | 0.730 | o,No spec |
| 11 19 30.318 | +22 26 49.29 | gE | 17.06 | 17.31 | 0.24 | 0.05 | 0.18 | 90.58 | 92.75 | -24.9 | 32.6 | 2.16 | 0.422 | X |
| 11 21 11.119 | +37 02 46.92 | * | 17.40 | 18.20 | 0.80 | 0.05 | 0.22 | 100.54 | 100.76 | -27.2 | 33.8 | 2.42 | 1.629 | |
| 11 22 11.522 | +42 37 09.78 | * | 16.58 | 16.56 | -0.02 | 0.05 | 0.59 | 1.09 | 0.90 | -27.2 | 31.2 | -0.12 | 0.813 | |
| 11 22 20.462 | +31 24 41.19 | * | 17.08 | 18.19 | 1.11 | 0.04 | 0.19 | 12.64 | 12.87 | -26.9 | 32.8 | 1.54 | 1.448 | LoBAL? |
| 11 22 41.467 | +30 35 34.88 | * | 16.35 | 16.73 | 0.38 | 0.04 | 0.36 | 10.06 | 10.02 | -28.9 | 32.8 | 0.82 | 1.809 | P1 |
| 11 24 34.169 | +32 28 19.57 | * | 17.34 | 18.03 | 0.69 | 0.06 | 0.39 | 24.72 | 38.13 | -27.2 | 33.3 | 1.93 | 1.525 | |
| 11 26 11.625 | +42 52 45.96 | * | 16.30 | 17.12 | 0.83 | 0.04 | 0.49 | 1.14 | 1.10 | -22.8 | 29.8 | 0.22 | 0.156 | |
| 11 27 36.394 | +26 54 50.13 | * | 16.19 | 16.72 | 0.53 | 0.05 | 0.37 | 2.18 | 1.86 | -25.2 | 30.8 | 0.30 | 0.378 | o |
| 11 27 51.065 | +40 18 47.20 | * | 17.06 | 17.45 | 0.39 | 0.04 | 0.11 | 12.85 | 13.17 | -26.3 | 32.3 | 1.31 | 0.829 | |
| 11 28 24.053 | +22 24 20.56 | * | 17.20 | 17.85 | 0.66 | 0.05 | 0.35 | 1.73 | 1.39 | -27.6 | 32.0 | 0.51 | 1.645 | |
| 11 28 51.697 | +23 26 17.24 | * | 17.63 | 18.80 | 1.16 | 0.05 | 0.07 | 150.88 | 156.62 | -28.1 | 34.5 | 2.75 | 3.036 | o |
| 11 28 57.828 | +36 22 50.74 | * | 17.51 | 18.02 | 0.51 | 0.06 | 0.52 | 1.11 | 1.77 | -28.8 | 32.5 | 0.51 | 2.890 | o |
| 11 29 22.479 | +33 30 49.74 | * | 17.43 | 17.93 | 0.50 | 0.05 | 0.03 | 6.21 | 6.00 | -26.7 | 32.3 | 1.14 | 1.172 | |
| 11 29 56.520 | +36 49 19.20 | gO | 17.44 | 16.75 | -0.69 | 0.06 | 0.26 | 20.70 | 20.54 | -25.3 | 31.9 | 1.29 | 0.399 | |
| 11 30 04.732 | +41 16 19.76 | * | 15.85 | 16.15 | 0.30 | 0.05 | 0.28 | 1.86 | 2.09 | -29.1 | 32.0 | -0.08 | 1.530 | o,new $z$ |
| 11 30 44.756 | +24 01 02.35 | * | 17.65 | 17.50 | -0.15 | 0.05 | 0.32 | 11.37 | 10.92 | -26.5 | 32.3 | 1.26 | 0.922 | |
| 11 31 09.214 | +26 32 08.38 | gE | 15.45 | 16.18 | 0.73 | 0.05 | 0.93 | 2.00 | 2.72 | -24.8 | 30.6 | 0.20 | 0.243 | o,X |
| 11 32 46.342 | +37 40 56.43 | * | 17.59 | 17.77 | 0.18 | 0.06 | 0.47 | 1.07 | 0.85 | -26.6 | 31.4 | 0.32 | 1.048 | |
| 11 33 03.859 | +37 04 57.20 | gO | 17.13 | 17.59 | 0.45 | 0.06 | 0.41 | 16.15 | 17.82 | -27.3 | 32.8 | 1.45 | 1.295 | |
| 11 33 14.760 | +28 11 59.65 | * | 16.63 | 17.14 | 0.51 | 0.06 | 0.74 | 9.73 | 9.58 | -25.5 | 31.8 | 1.10 | 0.512 | o |
| 11 34 27.802 | +41 47 21.70 | * | 16.67 | 17.10 | 0.44 | 0.06 | 0.53 | 3.34 | 2.89 | -26.7 | 31.7 | 0.58 | 0.818 | X |
| 11 34 48.669 | +35 43 56.77 | * | 17.48 | 17.68 | 0.20 | 0.06 | 0.58 | 1.28 | 0.96 | -25.7 | 31.1 | 0.41 | 0.688 | |
| 11 34 54.502 | +30 05 26.48 | * | 17.21 | 17.14 | -0.07 | 0.07 | 0.30 | 306.09 | 847.49 | -25.9 | 33.9 | 3.02 | 0.614 | o |
| 11 34 57.636 | +25 55 27.79 | * | 17.29 | 17.32 | 0.03 | 0.06 | 0.29 | 30.31 | 31.21 | -26.1 | 32.5 | 1.65 | 0.714 | |
| 11 36 36.791 | +39 00 04.96 | * | 15.64 | 16.06 | 0.42 | 0.07 | 0.33 | 5.38 | 4.89 | -27.6 | 31.9 | 0.37 | 0.795 | |
| 11 36 55.963 | +34 32 36.76 | gO | 16.00 | 16.73 | 0.72 | 0.05 | 0.27 | 1.66 | 1.27 | -23.7 | 30.1 | 0.22 | 0.192 | |
| 11 37 09.464 | +39 07 23.60 | * | 17.58 | 18.27 | 0.68 | 0.07 | 0.73 | 1.15 | 1.66 | -26.0 | 31.6 | 0.72 | 1.023 | |
| 11 39 10.100 | +37 32 11.49 | * | 16.47 | 17.15 | 0.67 | 0.05 | 0.12 | 1.91 | 1.81 | -28.1 | 32.0 | 0.28 | 1.490 | |
| 11 41 30.114 | +38 13 51.31 | * | 17.07 | 17.41 | 0.34 | 0.06 | 0.04 | 2.33 | 2.17 | -26.9 | 31.7 | 0.52 | 1.013 | |
| 11 42 43.362 | +33 30 25.49 | * | 17.07 | 17.48 | 0.41 | 0.06 | 0.04 | 13.98 | 14.36 | -27.6 | 32.8 | 1.30 | 1.410 | |
| 11 43 37.893 | +23 15 02.55 | * | 17.04 | 17.45 | 0.41 | 0.07 | 0.47 | 100.26 | 101.50 | -26.4 | 33.2 | 2.20 | 0.837 | |
| 11 45 49.498 | +29 06 41.68 | * | 14.74 | 15.86 | 1.12 | 0.06 | 0.50 | 2.74 | 1.78 | -23.8 | 30.1 | 0.10 | 0.141 | P1 |
| 11 46 31.693 | +27 46 24.07 | * | 16.54 | 17.58 | 1.04 | 0.06 | 0.33 | 34.77 | 37.12 | -23.9 | 31.9 | 1.89 | 0.314 | E(APS),O(APS) |

TABLE 2—*Continued*

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | $M_B$ (11) | $\log L_R$ (12) | $\log R^*$ (13) | z (14) | Notes (15) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 47 59.763 | +26 35 42.47 | * | 16.92 | 17.43 | 0.52 | 0.06 | 0.31 | 294.50 | 303.72 | -26.5 | 33.7 | 2.66 | 0.870 | o,X,No spec |
| 11 48 18.883 | +31 54 09.81 | * | 16.67 | 16.98 | 0.31 | 0.05 | 0.30 | 48.24 | 51.30 | -25.8 | 32.5 | 1.75 | 0.549 | o,X,No spec |
| 11 48 42.894 | +35 20 52.57 | * | 16.52 | 17.53 | 1.01 | 0.05 | 0.29 | 2.65 | 3.21 | -27.2 | 32.0 | 0.69 | 1.218 | |
| 11 48 51.474 | +23 13 40.58 | * | 17.46 | 19.16 | 1.70 | 0.05 | 0.18 | 5.73 | 5.63 | -27.8 | 33.0 | 1.46 | 3.077 | |
| 11 49 21.604 | +33 38 57.85 | * | 17.77 | 18.71 | 0.94 | 0.05 | 0.34 | 6.62 | 7.20 | -26.6 | 32.6 | 1.48 | 1.560 | |
| 11 50 19.580 | +33 41 43.89 | * | 17.45 | 17.91 | 0.47 | 0.06 | 0.32 | 98.64 | 229.85 | -27.3 | 34.0 | 2.67 | 1.490 | o,No spec |
| 11 50 23.570 | +28 19 07.50 | * | 16.46 | 18.00 | 1.54 | 0.06 | 0.10 | 13.96 | 14.22 | -29.0 | 33.4 | 1.39 | 3.124 | HiBAL?,dmpL$\alpha$ |
| 11 50 34.776 | +41 54 40.11 | * | 16.41 | 17.05 | 0.64 | 0.05 | 0.14 | 21.60 | 22.76 | -27.2 | 32.7 | 1.37 | 1.018 | X |
| 11 51 02.122 | +31 46 43.31 | * | 16.89 | 17.18 | 0.29 | 0.06 | 0.39 | 6.16 | 6.57 | -26.3 | 31.9 | 0.92 | 0.717 | |
| 11 51 17.757 | +38 22 21.75 | * | 15.02 | 15.50 | 0.48 | 0.06 | 0.25 | 10.93 | 10.79 | -26.2 | 31.4 | 0.52 | 0.336 | |
| 11 51 29.399 | +38 25 52.57 | * | 16.49 | 16.87 | 0.38 | 0.06 | 0.38 | 391.60 | 656.16 | -28.0 | 34.4 | 2.73 | 1.304 | o |
| 11 51 39.677 | +33 55 41.74 | * | 17.39 | 18.07 | 0.68 | 0.05 | 0.62 | 6.65 | 6.58 | -25.8 | 32.0 | 1.26 | 0.850 | |
| 11 52 27.514 | +32 09 59.27 | * | 16.93 | 17.30 | 0.37 | 0.06 | 0.52 | 29.02 | 32.92 | -24.6 | 32.0 | 1.71 | 0.374 | o,X,No spec |
| 11 52 51.909 | +33 07 18.96 | * | 15.75 | 16.18 | 0.43 | 0.05 | 0.53 | 187.17 | 190.31 | -28.8 | 33.9 | 1.91 | 1.389 | |
| 11 52 58.777 | +29 30 14.86 | * | 17.00 | 18.19 | 1.20 | 0.05 | 0.19 | 122.66 | 130.32 | -26.5 | 33.6 | 2.56 | 1.227 | P1 |
| 11 53 26.704 | +36 17 26.26 | * | 16.50 | 17.12 | 0.62 | 0.06 | 0.40 | 61.74 | 63.20 | -27.8 | 33.4 | 1.81 | 1.336 | X |
| 11 53 36.385 | +42 26 36.30 | * | 17.50 | 18.21 | 0.70 | 0.04 | 0.58 | 1.40 | 1.07 | -27.1 | 31.8 | 0.57 | 1.530 | |
| 11 53 44.729 | +40 39 04.90 | * | 17.38 | 17.79 | 0.40 | 0.04 | 0.24 | 6.75 | 6.75 | -27.1 | 32.4 | 1.10 | 1.317 | |
| 11 54 46.214 | +29 02 31.78 | * | 17.66 | 19.26 | 1.60 | 0.06 | 0.45 | 16.71 | 18.14 | -22.5 | 31.7 | 2.24 | 0.349 | |
| 11 56 07.848 | +37 34 14.75 | * | 17.12 | 17.81 | 0.70 | 0.05 | 0.20 | 4.10 | 3.98 | -28.6 | 32.7 | 0.81 | 2.456 | |
| 11 57 57.736 | +26 13 25.24 | * | 17.03 | 18.17 | 1.14 | 0.06 | 0.05 | 1.53 | 1.41 | -23.4 | 30.6 | 0.73 | 0.324 | |
| 11 59 17.315 | +28 38 14.85 | * | 17.37 | 18.19 | 0.82 | 0.06 | 0.44 | 2.22 | 2.01 | -22.4 | 30.3 | 0.92 | 0.210 | |
| 11 59 31.842 | +29 14 43.94 | * | 16.05 | 17.00 | 0.94 | 0.05 | 0.38 | 1855.80 | 1952.59 | -26.5 | 34.4 | 3.32 | 0.724 | o,X |
| 12 00 51.501 | +35 08 31.41 | gE | 15.21 | 16.45 | 1.24 | 0.05 | 0.69 | 2.03 | 1.46 | -29.1 | 32.1 | 0.01 | 1.700 | o,HiBAL |
| 12 02 40.678 | +26 31 38.59 | * | 17.23 | 17.35 | 0.12 | 0.06 | 0.59 | 61.67 | 63.84 | -25.1 | 32.5 | 2.00 | 0.478 | X |
| 12 02 43.556 | +37 35 51.69 | * | 17.31 | 17.46 | 0.15 | 0.04 | 0.38 | 16.29 | 17.24 | -27.2 | 32.7 | 1.39 | 1.194 | o,new $z$ |
| 12 04 37.585 | +28 51 25.36 | * | 16.26 | 17.16 | 0.90 | 0.05 | 0.49 | 6.24 | 5.57 | -27.4 | 32.2 | 0.84 | 1.129 | P1 |
| 12 06 46.814 | +41 48 32.21 | gE | 17.52 | 18.44 | 0.92 | 0.04 | 1.04 | 6.32 | 6.59 | -27.2 | 32.7 | 1.32 | 1.806 | |
| 12 07 22.352 | +25 27 28.24 | * | 17.77 | 18.63 | 0.86 | 0.05 | 0.51 | 2.23 | 2.07 | -21.9 | 30.3 | 1.10 | 0.208 | |
| 12 08 11.320 | +41 14 04.69 | * | 17.61 | 18.14 | 0.53 | 0.04 | 0.22 | 1.22 | 1.37 | -27.4 | 31.9 | 0.52 | 1.736 | |
| 12 09 27.227 | +22 42 59.14 | * | 17.48 | 18.04 | 0.56 | 0.08 | 0.35 | 8.07 | 8.13 | -26.6 | 32.4 | 1.30 | 1.208 | |
| 12 09 45.239 | +32 17 00.87 | * | 16.65 | 16.99 | 0.34 | 0.05 | 0.85 | 1.66 | 1.95 | -22.8 | 30.0 | 0.40 | 0.145 | o,X,No spec |
| 12 09 49.894 | +22 36 44.40 | * | 17.73 | 18.37 | 0.64 | 0.08 | 0.33 | 1.95 | 2.13 | -27.2 | 32.1 | 0.80 | 1.722 | |
| 12 10 37.577 | +31 57 06.03 | * | 16.34 | 16.57 | 0.23 | 0.05 | 0.10 | 19.15 | 22.04 | -25.4 | 31.9 | 1.24 | 0.388 | o,X |
| 12 14 04.115 | +33 09 45.74 | * | 16.59 | 16.97 | 0.39 | 0.04 | 0.20 | 1372.84 | 1417.99 | -28.4 | 34.9 | 3.08 | 1.600 | o,No spec |
| 12 14 42.303 | +28 03 29.01 | * | 15.87 | 17.03 | 1.16 | 0.06 | 0.14 | 2.61 | 2.90 | -26.3 | 31.5 | 0.50 | 0.698 | FeLoBAL |
| 12 15 12.000 | +38 38 32.09 | gO | 17.55 | 17.08 | -0.47 | 0.04 | 0.27 | 2.15 | 1.78 | -25.6 | 31.1 | 0.42 | 0.516 | |
| 12 17 21.415 | +30 56 30.65 | gE | 16.76 | 17.37 | 0.62 | 0.04 | 0.11 | 8.69 | 8.67 | -24.0 | 31.2 | 1.18 | 0.300 | o,X |
| 12 17 32.545 | +33 05 38.22 | * | 17.51 | 17.76 | 0.25 | 0.04 | 0.27 | 183.25 | 188.85 | -28.8 | 34.4 | 2.45 | 2.605 | o,No spec |
| 12 20 35.131 | +38 53 17.12 | * | 16.32 | 16.49 | 0.17 | 0.07 | 0.37 | 2.02 | 2.23 | -25.4 | 30.9 | 0.22 | 0.376 | |
| 12 23 13.387 | +29 08 24.05 | * | 16.83 | 17.51 | 0.68 | 0.06 | 0.15 | 1.46 | 0.82 | -27.0 | 31.6 | 0.35 | 1.126 | P1 |
| 12 24 24.235 | +40 15 10.72 | gE | 17.54 | 17.79 | 0.26 | 0.06 | 0.24 | 39.84 | 41.56 | -24.4 | 32.2 | 2.00 | 0.415 | |
| 12 25 16.970 | +31 45 35.01 | * | 17.19 | 17.65 | 0.45 | 0.06 | 0.18 | 4.35 | 7.59 | -27.2 | 32.4 | 1.10 | 1.274 | |
| 12 25 27.389 | +22 35 12.72 | * | 16.16 | 16.32 | 0.16 | 0.06 | 0.52 | 3.86 | 5.69 | -29.6 | 32.7 | 0.39 | 2.043 | o |
| 12 25 39.555 | +24 58 36.36 | gE | 15.96 | 16.65 | 0.69 | 0.05 | 0.28 | 6.87 | 8.32 | -24.5 | 31.1 | 0.87 | 0.268 | o,X |
| 12 26 24.215 | +32 44 29.37 | gE | 16.35 | 17.01 | 0.66 | 0.05 | 0.44 | 1.49 | 2.81 | -23.9 | 30.6 | 0.55 | 0.242 | X |
| 12 27 49.151 | +32 14 59.04 | * | 16.82 | 18.75 | 1.93 | 0.05 | 0.24 | 6.54 | 6.42 | -20.9 | 30.4 | 1.63 | 0.137 | X |
| 12 28 24.988 | +31 28 37.74 | * | 15.51 | 15.88 | 0.37 | 0.04 | 0.35 | 315.34 | 323.78 | -30.3 | 34.5 | 1.95 | 2.199 | o |
| 12 30 01.002 | +29 03 57.29 | * | 16.41 | 16.82 | 0.42 | 0.07 | 0.43 | 2.42 | 1.99 | -28.5 | 32.1 | 0.25 | 1.569 | P1 |
| 12 30 10.336 | +28 30 40.85 | * | 17.26 | 17.99 | 0.73 | 0.05 | 0.61 | 1.18 | 1.89 | -26.7 | 31.8 | 0.64 | 1.226 | |
| 12 31 43.589 | +28 47 49.71 | gE | 15.93 | 16.70 | 0.77 | 0.06 | 0.30 | 93.78 | 97.85 | -27.5 | 33.3 | 1.86 | 1.000 | X |
| 12 31 55.985 | +35 30 15.12 | gO | 14.87 | 15.96 | 1.09 | 0.04 | 0.14 | 3.50 | 3.68 | -23.6 | 30.2 | 0.27 | 0.131 | X,I |
| 12 32 52.693 | +41 43 21.86 | * | 17.58 | 18.10 | 0.52 | 0.05 | 0.47 | 2.66 | 2.54 | -25.6 | 31.6 | 0.88 | 0.794 | |
| 12 32 52.745 | +30 15 23.97 | * | 17.40 | 18.05 | 0.66 | 0.05 | 0.39 | 3.70 | 3.72 | -25.9 | 31.8 | 1.00 | 0.898 | P1 |
| 12 33 38.687 | +42 22 39.12 | * | 17.45 | 18.69 | 1.24 | 0.06 | 0.84 | 1.14 | 2.65 | -25.5 | 31.8 | 1.09 | 0.982 | |
| 12 33 55.515 | +29 07 48.94 | * | 16.21 | 16.84 | 0.63 | 0.05 | 0.15 | 1.09 | 0.74 | -29.1 | 32.0 | -0.12 | 2.013 | o |
| 12 34 25.658 | +24 31 43.92 | * | 17.27 | 17.77 | 0.50 | 0.05 | 0.21 | 510.65 | 547.28 | -27.2 | 34.3 | 3.01 | 1.340 | o |
| 12 36 51.570 | +25 07 50.67 | gE | 17.27 | 17.60 | 0.33 | 0.04 | 0.46 | 16.25 | 16.97 | -25.2 | 32.1 | 1.52 | 0.550 | o,X,No spec |
| 12 38 12.215 | +27 12 56.21 | gO | 17.65 | 19.25 | 1.59 | 0.04 | 0.05 | 1.12 | 1.15 | -21.6 | 30.2 | 1.06 | 0.235 | |
| 12 39 15.040 | +40 49 56.07 | * | 17.80 | 18.65 | 0.85 | 0.05 | 0.94 | 56.64 | 65.61 | -26.2 | 33.4 | 2.44 | 1.318 | |
| 12 40 09.142 | +24 25 31.07 | * | 16.35 | 16.83 | 0.48 | 0.04 | 0.27 | 30.16 | 32.36 | -27.0 | 32.7 | 1.45 | 0.829 | X |
| 12 45 03.587 | +42 28 44.92 | gE | 17.56 | 18.16 | 0.60 | 0.06 | 0.85 | 1.44 | 2.18 | -24.3 | 31.0 | 0.86 | 0.478 | |
| 12 45 11.268 | +33 56 10.23 | * | 16.60 | 17.15 | 0.55 | 0.04 | 0.31 | 1.88 | 1.23 | -26.3 | 31.3 | 0.36 | 0.709 | o |
| 12 47 20.821 | +32 09 00.89 | * | 17.14 | 17.97 | 0.82 | 0.04 | 0.29 | 77.07 | 132.09 | -26.1 | 33.4 | 2.51 | 0.947 | o,X |
| 12 48 13.883 | +36 24 23.96 | gE | 16.75 | 18.61 | 1.86 | 0.04 | 0.70 | 2.36 | 2.93 | -22.0 | 30.4 | 1.21 | 0.206 | X |
| 12 49 18.397 | +28 17 43.85 | * | 17.71 | 18.36 | 0.65 | 0.04 | 0.12 | 70.33 | 73.42 | -27.2 | 33.7 | 2.34 | 1.705 | |
| 12 52 24.970 | +29 13 21.17 | * | 16.97 | 17.37 | 0.41 | 0.04 | 0.45 | 1.37 | 0.76 | -26.4 | 31.3 | 0.30 | 0.824 | o |
| 12 53 06.423 | +29 05 13.85 | * | 17.49 | 17.72 | 0.23 | 0.03 | 0.25 | 60.91 | 61.78 | -28.8 | 33.9 | 1.95 | 2.573 | P1 |
| 12 53 17.583 | +31 05 50.41 | * | 16.42 | 16.71 | 0.29 | 0.04 | 0.70 | 1.76 | 1.60 | -26.9 | 31.4 | 0.15 | 0.782 | o,I |
| 12 56 02.065 | +38 52 30.74 | * | 16.97 | 17.89 | 0.92 | 0.05 | 0.19 | 2.05 | 2.10 | -24.3 | 30.9 | 0.75 | 0.419 | |
| 12 57 18.306 | +24 54 42.67 | * | 17.39 | 17.75 | 0.36 | 0.03 | 0.33 | 43.38 | 44.17 | -27.4 | 33.3 | 1.89 | 1.487 | |

TABLE 2—*Continued*

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | $M_B$ (11) | $\log L_R$ (12) | $\log R^*$ (13) | z (14) | Notes (15) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 57 23.863 | +36 44 19.39 | gE | 17.64 | 18.40 | 0.76 | 0.04 | 0.69 | 690.34 | 716.97 | -25.0 | 33.9 | 3.44 | 0.710 | o,No spec |
| 12 57 31.348 | +40 42 06.74 | * | 17.58 | 18.49 | 0.91 | 0.04 | 1.03 | 10.80 | 14.08 | -26.3 | 32.7 | 1.71 | 1.260 | |
| 12 58 07.457 | +23 29 21.87 | * | 16.69 | 17.47 | 0.78 | 0.05 | 0.49 | 4.16 | 3.71 | -27.2 | 32.1 | 0.78 | 1.185 | |
| 12 58 29.695 | +35 28 43.27 | gO | 17.40 | 18.42 | 1.02 | 0.03 | 0.51 | 15.55 | 21.48 | -27.3 | 33.2 | 1.81 | 1.880 | o,No spec |
| 12 59 48.789 | +34 23 22.64 | * | 16.10 | 16.91 | 0.81 | 0.03 | 0.08 | 10.56 | 12.25 | -28.1 | 32.7 | 1.01 | 1.377 | o,X |
| 13 00 28.544 | +28 30 10.20 | gO | 17.07 | 17.74 | 0.66 | 0.03 | 0.41 | 192.10 | 195.64 | -25.5 | 33.3 | 2.62 | 0.646 | o |
| 13 02 03.082 | +26 58 09.09 | * | 17.56 | 18.00 | 0.44 | 0.03 | 0.16 | 7.38 | 7.31 | -26.2 | 32.2 | 1.26 | 0.992 | |
| 13 02 29.340 | +41 32 22.59 | * | 17.59 | 18.38 | 0.79 | 0.04 | 0.22 | 17.22 | 20.99 | -26.5 | 32.9 | 1.84 | 1.290 | |
| 13 04 25.543 | +42 10 09.66 | * | 16.33 | 17.08 | 0.75 | 0.04 | 0.35 | 1.52 | 0.99 | -28.7 | 32.1 | 0.13 | 1.916 | o,HiBAL |
| 13 04 33.441 | +32 06 35.79 | * | 17.07 | 18.15 | 1.08 | 0.04 | 0.49 | 10.48 | 10.15 | -26.8 | 32.6 | 1.44 | 1.333 | |
| 13 04 51.426 | +24 54 45.96 | * | 17.12 | 17.51 | 0.38 | 0.04 | 0.26 | 22.21 | 23.56 | -25.5 | 32.3 | 1.62 | 0.604 | X |
| 13 06 13.330 | +39 15 26.60 | * | 15.71 | 16.06 | 0.35 | 0.04 | 0.49 | 4.45 | 3.77 | -26.3 | 31.3 | 0.34 | 0.447 | |
| 13 06 21.808 | +31 33 59.84 | gE | 17.59 | 18.33 | 0.75 | 0.03 | 0.55 | 4.46 | 4.52 | -23.7 | 31.2 | 1.26 | 0.396 | |
| 13 06 41.679 | +41 48 27.51 | * | 17.23 | 18.07 | 0.84 | 0.05 | 0.13 | 32.19 | 33.45 | -26.5 | 33.0 | 1.93 | 1.157 | |
| 13 07 44.354 | +36 09 22.21 | * | 17.24 | 18.01 | 0.77 | 0.04 | 1.02 | 1.20 | 1.10 | -27.0 | 31.7 | 0.44 | 1.402 | o,new *z* |
| 13 09 44.933 | +22 26 32.00 | * | 17.24 | 17.87 | 0.64 | 0.04 | 0.55 | 1.72 | 1.81 | -28.0 | 32.2 | 0.52 | 1.957 | |
| 13 09 52.389 | +27 42 40.85 | * | 17.64 | 18.05 | 0.41 | 0.03 | 0.61 | 1.99 | 2.13 | -25.3 | 31.4 | 0.78 | 0.699 | |
| 13 10 16.748 | +33 44 19.60 | * | 17.73 | 18.12 | 0.38 | 0.03 | 0.01 | 17.23 | 17.77 | -27.5 | 33.1 | 1.62 | 1.780 | o,No spec |
| 13 10 59.404 | +32 33 34.59 | * | 16.47 | 17.08 | 0.61 | 0.03 | 0.17 | 243.42 | 245.97 | -28.4 | 34.2 | 2.36 | 1.650 | o,No spec |
| 13 11 32.065 | +37 34 08.01 | gO | 17.20 | 17.41 | 0.20 | 0.04 | 0.78 | 1.20 | 1.53 | -27.4 | 31.7 | 0.31 | 1.272 | o |
| 13 12 13.560 | +23 19 58.51 | * | 16.95 | 17.84 | 0.89 | 0.03 | 0.37 | 43.27 | 44.12 | -27.4 | 33.3 | 1.92 | 1.508 | HiBAL |
| 13 12 17.763 | +35 15 21.25 | gE | 15.17 | 15.86 | 0.70 | 0.03 | 0.23 | 43.92 | 44.72 | -24.4 | 31.5 | 1.30 | 0.183 | o,X |
| 13 13 14.271 | +37 53 57.21 | * | 16.73 | 17.10 | 0.38 | 0.04 | 0.25 | 2.48 | 2.44 | -26.1 | 31.4 | 0.47 | 0.656 | |
| 13 14 23.149 | +29 10 01.86 | * | 17.49 | 18.26 | 0.77 | 0.03 | 0.18 | 7.53 | 7.22 | -26.2 | 32.3 | 1.36 | 1.094 | P1 |
| 13 14 35.185 | +30 18 02.90 | * | 17.65 | 18.46 | 0.81 | 0.03 | 0.33 | 7.07 | 7.30 | -27.4 | 32.8 | 1.36 | 1.920 | |
| 13 17 18.653 | +39 25 28.02 | * | 17.80 | 18.59 | 0.79 | 0.04 | 0.21 | 473.47 | 614.98 | -26.7 | 34.5 | 3.36 | 1.560 | o,No spec |
| 13 20 33.219 | +33 11 42.35 | * | 17.52 | 17.98 | 0.46 | 0.04 | 0.26 | 22.35 | 23.51 | -26.1 | 32.6 | 1.76 | 0.924 | |
| 13 21 06.686 | +37 41 53.41 | * | 17.68 | 17.73 | 0.05 | 0.03 | 0.46 | 8.73 | 8.43 | -26.8 | 32.4 | 1.21 | 1.135 | |
| 13 21 46.519 | +26 51 49.99 | * | 16.57 | 17.02 | 0.45 | 0.06 | 0.79 | 2.62 | 1.81 | -26.8 | 31.6 | 0.44 | 0.844 | |
| 13 22 55.672 | +39 12 07.91 | * | 17.23 | 18.24 | 1.01 | 0.03 | 0.65 | 101.01 | 102.01 | -28.6 | 34.3 | 2.35 | 2.982 | o |
| 13 23 08.223 | +23 09 58.04 | gE | 15.99 | 17.97 | 1.99 | 0.05 | 0.73 | 1.54 | 2.73 | -21.8 | 30.1 | 0.94 | 0.145 | |
| 13 23 55.675 | +25 08 34.31 | * | 17.49 | 18.77 | 1.27 | 0.04 | 0.14 | 99.39 | 100.53 | -26.5 | 33.7 | 2.65 | 1.528 | |
| 13 24 22.536 | +24 52 22.25 | gE | 17.40 | 18.87 | 1.47 | 0.04 | 0.63 | 4.89 | 4.41 | -27.4 | 32.8 | 1.32 | 2.357 | LoBAL |
| 13 25 15.008 | +33 05 56.19 | * | 16.94 | 17.61 | 0.67 | 0.03 | 0.24 | 1.31 | 0.84 | -24.2 | 30.6 | 0.44 | 0.356 | |
| 13 25 50.783 | +35 53 34.58 | * | 17.35 | 17.89 | 0.54 | 0.03 | 0.86 | 1.55 | 0.89 | -27.1 | 31.8 | 0.50 | 1.358 | |
| 13 26 29.102 | +36 23 34.91 | * | 17.04 | 17.76 | 0.72 | 0.03 | 0.28 | 1.75 | 1.07 | -24.2 | 30.8 | 0.62 | 0.389 | |
| 13 27 35.577 | +24 07 42.68 | * | 17.06 | 18.17 | 1.11 | 0.04 | 0.33 | 46.87 | 46.94 | -26.5 | 33.2 | 2.11 | 1.201 | |
| 13 28 16.089 | +23 09 16.50 | * | 17.67 | 18.56 | 0.88 | 0.06 | 0.19 | 1.40 | 1.24 | -23.4 | 30.7 | 0.84 | 0.387 | |
| 13 29 03.250 | +25 31 09.57 | * | 17.07 | 17.92 | 0.85 | 0.03 | 0.99 | 16.32 | 22.46 | -26.3 | 32.7 | 1.71 | 0.990 | o,No spec |
| 13 29 09.161 | +22 13 49.55 | * | 17.48 | 18.52 | 1.03 | 0.05 | 0.09 | 6.48 | 6.19 | -25.8 | 32.2 | 1.41 | 1.051 | |
| 13 30 37.694 | +25 09 10.87 | gE | 16.52 | 18.23 | 1.72 | 0.03 | 0.39 | 6826.39 | 6999.01 | -26.1 | 35.2 | 4.33 | 1.055 | o |
| 13 31 08.285 | +30 30 32.95 | * | 16.89 | 17.23 | 0.34 | 0.03 | 0.27 | 14777.96 | 15023.95 | -26.6 | 35.4 | 4.28 | 0.848 | o |
| 13 31 26.340 | +37 56 04.97 | * | 17.32 | 18.17 | 0.84 | 0.02 | 0.74 | 6.61 | 6.80 | -26.2 | 32.2 | 1.29 | 1.048 | |
| 13 33 09.753 | +36 20 30.86 | * | 17.21 | 17.61 | 0.40 | 0.03 | 0.03 | 16.63 | 17.50 | -25.7 | 32.3 | 1.52 | 0.679 | |
| 13 33 17.602 | +30 49 13.12 | * | 17.35 | 18.03 | 0.67 | 0.04 | 0.24 | 15.26 | 16.09 | -27.4 | 33.0 | 1.55 | 1.639 | |
| 13 33 45.466 | +41 41 28.17 | * | 17.20 | 18.30 | 1.10 | 0.02 | 0.46 | 2.47 | 1.95 | -22.5 | 30.5 | 1.01 | 0.225 | X |
| 13 34 03.842 | +37 01 04.00 | * | 16.84 | 17.84 | 1.00 | 0.02 | 0.51 | 13.17 | 13.31 | -27.8 | 32.9 | 1.38 | 1.765 | |
| 13 34 49.725 | +31 28 24.09 | * | 17.26 | 17.78 | 0.52 | 0.03 | 0.35 | 21.27 | 22.39 | -27.1 | 32.9 | 1.63 | 1.311 | |
| 13 37 39.872 | +39 09 16.38 | * | 8.10 | 9.17 | 1.07 | 0.02 | 0.67 | 1.68 | 2.47 | -26.2 | 28.4 | -2.60 | 0.020 | o,I,B=14.27 |
| 13 40 05.764 | +34 37 07.86 | gO | 17.14 | 18.76 | 1.62 | 0.03 | 0.41 | 1.33 | 1.61 | -21.9 | 30.2 | 1.01 | 0.218 | |
| 13 40 09.122 | +23 55 17.93 | * | 16.99 | 17.57 | 0.58 | 0.04 | 0.14 | 17.89 | 18.99 | -27.3 | 32.9 | 1.47 | 1.327 | |
| 13 41 33.117 | +35 32 51.94 | * | 17.62 | 18.17 | 0.54 | 0.03 | 0.38 | 52.49 | 57.42 | -25.5 | 32.9 | 2.24 | 0.780 | |
| 13 41 59.915 | +37 07 10.20 | * | 16.32 | 16.73 | 0.41 | 0.02 | 0.55 | 24.50 | 25.42 | -27.7 | 32.8 | 1.28 | 1.106 | X |
| 13 42 54.390 | +28 28 05.92 | * | 17.57 | 18.09 | 0.53 | 0.04 | 0.37 | 65.57 | 68.41 | -26.2 | 33.2 | 2.26 | 1.040 | o,No spec |
| 13 43 00.121 | +28 44 07.02 | * | 16.18 | 16.81 | 0.63 | 0.04 | 1.01 | 217.37 | 246.65 | -27.2 | 33.7 | 2.32 | 0.905 | o,X |
| 13 44 54.472 | +42 13 38.68 | * | 17.46 | 18.14 | 0.69 | 0.02 | 0.35 | 11.51 | 11.00 | -27.0 | 32.7 | 1.47 | 1.468 | |
| 13 45 20.421 | +32 41 12.59 | * | 17.55 | 17.86 | 0.31 | 0.04 | 0.28 | 13.90 | 14.62 | -28.3 | 33.2 | 1.40 | 2.253 | |
| 13 45 25.703 | +37 12 19.48 | * | 17.39 | 17.83 | 0.44 | 0.02 | 0.74 | 1.19 | 0.67 | -26.3 | 31.4 | 0.41 | 0.962 | |
| 13 45 36.948 | +38 23 12.62 | * | 17.67 | 18.36 | 0.69 | 0.03 | 0.40 | 845.79 | 853.81 | -27.4 | 34.8 | 3.39 | 1.844 | O(APS),o |
| 13 46 09.765 | +25 40 59.84 | * | 17.74 | 18.75 | 1.01 | 0.03 | 0.14 | 17.20 | 18.70 | -23.3 | 31.8 | 2.04 | 0.390 | |
| 13 46 35.072 | +31 21 33.84 | * | 17.70 | 18.52 | 0.82 | 0.04 | 1.14 | 1.24 | 1.37 | -22.5 | 30.3 | 0.84 | 0.247 | |
| 13 46 45.498 | +23 11 37.54 | * | 17.54 | 19.17 | 1.63 | 0.04 | 0.29 | 1.11 | 1.99 | -23.0 | 30.9 | 1.24 | 0.410 | |
| 13 47 37.449 | +30 12 52.12 | gE | 15.78 | 16.23 | 0.45 | 0.05 | 0.18 | 15.42 | 15.88 | -23.1 | 30.7 | 1.01 | 0.118 | P1 |
| 13 48 04.313 | +28 40 25.43 | * | 17.51 | 17.67 | 0.16 | 0.04 | 0.43 | 72.45 | 78.07 | -28.8 | 34.0 | 2.03 | 2.464 | P1 |
| 13 48 20.885 | +30 20 05.59 | * | 17.49 | 17.83 | 0.34 | 0.05 | 0.08 | 22.49 | 23.53 | -27.9 | 33.2 | 1.62 | 1.865 | P1 |
| 13 50 15.151 | +38 12 06.77 | * | 17.51 | 17.30 | -0.20 | 0.04 | 0.86 | 77.34 | 123.44 | -27.7 | 33.7 | 2.17 | 1.390 | o,No spec |
| 13 53 26.133 | +36 20 49.24 | gE | 14.70 | 15.41 | 0.71 | 0.04 | 0.59 | 1.70 | 1.57 | -25.9 | 30.5 | -0.32 | 0.286 | o |
| 13 53 35.925 | +26 31 47.54 | * | 17.20 | 17.72 | 0.52 | 0.04 | 0.34 | 22.35 | 23.63 | -23.7 | 31.7 | 1.75 | 0.307 | o,X |
| 13 54 30.686 | +33 13 46.98 | * | 17.63 | 18.06 | 0.42 | 0.05 | 0.51 | 16.36 | 16.38 | -25.6 | 32.4 | 1.65 | 0.795 | |
| 13 55 29.883 | +29 30 59.27 | * | 17.26 | 18.16 | 0.90 | 0.04 | 0.46 | 1.74 | 1.54 | -23.3 | 30.6 | 0.79 | 0.302 | P1 |
| 13 56 07.365 | +41 36 15.34 | * | 16.23 | 16.71 | 0.48 | 0.01 | 0.20 | 23.47 | 24.31 | -26.6 | 32.4 | 1.30 | 0.691 | o,X |

TABLE 2—*Continued*

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | $M_B$ (11) | $\log L_R$ (12) | $\log R^*$ (13) | z (14) | Notes (15) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 56 40.380 | +24 31 00.36 | * | 17.26 | 17.98 | 0.72 | 0.04 | 0.15 | 44.20 | 45.04 | -26.4 | 33.0 | 2.03 | 1.044 | |
| 13 58 45.399 | +26 58 08.34 | * | 17.69 | 18.76 | 1.07 | 0.06 | 0.38 | 1.82 | 1.17 | -22.9 | 30.7 | 1.05 | 0.330 | |
| 13 59 54.844 | +22 52 23.92 | * | 17.35 | 18.58 | 1.23 | 0.06 | 0.61 | 1.55 | 2.02 | -23.0 | 30.7 | 1.02 | 0.324 | |
| 14 00 12.603 | +35 39 30.78 | * | 17.06 | 17.57 | 0.52 | 0.03 | 0.31 | 2.15 | 2.10 | -25.1 | 31.1 | 0.61 | 0.525 | |
| 14 01 27.231 | +31 38 12.90 | gO | 17.77 | 17.85 | 0.09 | 0.06 | 0.72 | 1.18 | 2.20 | -23.1 | 30.5 | 0.78 | 0.241 | |
| 14 01 46.991 | +23 24 13.83 | * | 16.08 | 16.78 | 0.71 | 0.07 | 0.83 | 1.04 | 1.50 | -23.9 | 30.2 | 0.19 | 0.213 | |
| 14 02 00.587 | +42 04 42.18 | gE | 17.13 | 18.71 | 1.57 | 0.04 | 0.71 | 1.02 | 1.23 | -21.4 | 29.9 | 0.88 | 0.168 | |
| 14 05 04.815 | +26 57 27.72 | * | 16.98 | 17.26 | 0.28 | 0.05 | 0.35 | 5.21 | 4.91 | -26.2 | 31.8 | 0.85 | 0.713 | |
| 14 05 16.195 | +25 55 34.93 | gE | 15.37 | 15.78 | 0.42 | 0.04 | 0.63 | 1.19 | 0.75 | -24.3 | 29.9 | -0.30 | 0.165 | o,X,I |
| 14 05 45.121 | +27 25 15.31 | * | 17.19 | 17.34 | 0.15 | 0.06 | 1.02 | 1.18 | 0.74 | -22.7 | 29.9 | 0.32 | 0.164 | X |
| 14 06 26.600 | +25 09 21.30 | gE | 16.16 | 17.16 | 1.00 | 0.05 | 0.26 | 67.51 | 67.69 | -26.7 | 33.1 | 1.90 | 0.867 | o |
| 14 08 00.454 | +34 51 25.11 | * | 17.03 | 18.44 | 1.41 | 0.04 | 0.40 | 2.91 | 2.87 | -26.3 | 32.0 | 1.01 | 1.215 | LoBAL |
| 14 08 06.207 | +30 54 48.67 | * | 17.30 | 19.00 | 1.69 | 0.03 | 0.25 | 3.34 | 3.21 | -24.8 | 31.7 | 1.33 | 0.842 | LoBAL,$z$? |
| 14 08 27.822 | +24 09 24.39 | gE | 15.26 | 16.58 | 1.32 | 0.05 | 0.12 | 3.59 | 3.02 | -23.0 | 30.1 | 0.50 | 0.131 | X |
| 14 09 23.904 | +26 18 21.00 | * | 15.38 | 15.64 | 0.27 | 0.04 | 0.16 | 8.85 | 9.19 | -28.5 | 32.3 | 0.42 | 0.945 | o,X |
| 14 10 36.802 | +29 55 51.08 | gO | 17.67 | 17.51 | -0.16 | 0.04 | 0.39 | 4.00 | 4.09 | -25.4 | 31.5 | 0.86 | 0.570 | P1 |
| 14 11 59.734 | +42 39 50.43 | * | 16.54 | 17.40 | 0.86 | 0.02 | 0.12 | 71.17 | 72.31 | -26.5 | 33.1 | 2.03 | 0.886 | o,X |
| 14 13 34.404 | +42 12 01.76 | * | 17.60 | 18.40 | 0.80 | 0.02 | 0.14 | 17.79 | 18.74 | -28.3 | 33.5 | 1.69 | 2.810 | HiBAL |
| 14 15 28.473 | +37 06 21.49 | * | 17.43 | 18.33 | 0.90 | 0.02 | 0.36 | 406.30 | 409.69 | -28.0 | 34.7 | 3.03 | 2.360 | o |
| 14 16 17.381 | +26 49 06.20 | * | 17.69 | 18.44 | 0.76 | 0.04 | 0.54 | 2.94 | 2.60 | -27.8 | 32.5 | 0.93 | 2.297 | |
| 14 16 30.672 | +37 21 37.09 | * | 17.73 | 18.57 | 0.84 | 0.02 | 0.33 | 29.33 | 30.53 | -25.5 | 32.8 | 2.11 | 0.921 | X |
| 14 17 17.882 | +23 17 20.19 | * | 17.51 | 17.93 | 0.42 | 0.06 | 0.21 | 43.26 | 48.27 | -26.1 | 33.0 | 2.06 | 0.921 | |
| 14 17 41.087 | +22 35 28.77 | * | 17.49 | 17.72 | 0.23 | 0.07 | 1.05 | 1.02 | 2.61 | -26.3 | 31.7 | 0.71 | 0.903 | |
| 14 18 42.235 | +42 33 43.12 | * | 15.98 | 16.37 | 0.39 | 0.03 | 0.24 | 1.73 | 1.25 | -25.8 | 30.8 | 0.05 | 0.421 | o,I |
| 14 19 16.714 | +32 03 03.04 | gE | 16.11 | 16.30 | 0.19 | 0.03 | 0.43 | 7.39 | 7.37 | -25.6 | 31.4 | 0.66 | 0.377 | |
| 14 19 17.364 | +31 09 24.01 | * | 17.06 | 18.28 | 1.23 | 0.04 | 0.57 | 1.17 | 0.99 | -25.5 | 31.3 | 0.59 | 0.840 | |
| 14 20 13.072 | +25 34 03.71 | * | 16.78 | 18.24 | 1.47 | 0.05 | 0.57 | 1.27 | 1.17 | -27.9 | 32.1 | 0.49 | 2.200 | o,HiBAL |
| 14 21 06.049 | +38 55 22.96 | * | 17.73 | 18.74 | 1.02 | 0.03 | 0.21 | 94.32 | 97.91 | -23.8 | 32.7 | 2.75 | 0.490 | O(APS) |
| 14 21 08.724 | +22 41 17.42 | * | 16.76 | 16.87 | 0.11 | 0.11 | 0.03 | 4.73 | 5.21 | -29.3 | 32.7 | 0.56 | 2.181 | o |
| 14 21 14.075 | +28 24 52.23 | * | 17.10 | 17.51 | 0.41 | 0.04 | 0.46 | 46.79 | 48.74 | -25.3 | 32.5 | 1.94 | 0.538 | P1 |
| 14 22 30.375 | +32 23 10.50 | * | 17.14 | 17.47 | 0.32 | 0.03 | 0.83 | 412.83 | 425.66 | -25.9 | 33.6 | 2.85 | 0.685 | o,X,No spec |
| 14 22 55.380 | +32 51 02.81 | * | 7.25 | 8.38 | 1.13 | 0.03 | 0.21 | 2.53 | 6.41 | -28.2 | 29.3 | -2.50 | 0.035 | o,I,B=14.54 |
| 14 23 26.073 | +32 52 20.34 | * | 16.34 | 16.58 | 0.24 | 0.03 | 0.42 | 8.71 | 8.16 | -29.2 | 32.8 | 0.68 | 1.903 | o |
| 14 25 50.651 | +24 04 03.53 | * | 17.06 | 17.64 | 0.58 | 0.08 | 0.86 | 121.14 | 320.88 | -25.6 | 33.5 | 2.80 | 0.654 | o,X |
| 14 26 06.195 | +40 24 32.02 | gE | 17.05 | 17.78 | 0.73 | 0.03 | 0.11 | 26.26 | 26.66 | -25.5 | 32.4 | 1.77 | 0.665 | o,X |
| 14 26 34.445 | +22 45 04.19 | * | 17.03 | 17.49 | 0.46 | 0.15 | 0.50 | 1.03 | 0.77 | -26.8 | 31.4 | 0.20 | 1.033 | |
| 14 27 02.211 | +27 01 22.51 | * | 17.65 | 19.09 | 1.44 | 0.05 | 0.18 | 21.60 | 22.55 | -21.0 | 31.1 | 2.30 | 0.164 | |
| 14 27 03.637 | +27 09 40.29 | * | 17.68 | 19.05 | 1.37 | 0.05 | 0.30 | 2.58 | 2.98 | -25.6 | 32.0 | 1.27 | 1.170 | FeLoBAL |
| 14 27 35.609 | +26 32 14.58 | gO | 15.79 | 15.79 | 0.00 | 0.05 | 0.48 | 42.72 | 44.67 | -26.1 | 32.1 | 1.24 | 0.368 | o |
| 14 28 07.909 | +22 32 57.54 | * | 17.64 | 18.37 | 0.72 | 0.15 | 0.40 | 1.79 | 1.94 | -26.5 | 31.9 | 0.80 | 1.319 | |
| 14 28 52.831 | +27 10 42.53 | * | 17.54 | 17.73 | 0.20 | 0.06 | 0.17 | 6.82 | 6.75 | -24.6 | 31.5 | 1.19 | 0.445 | |
| 14 29 50.889 | +26 07 50.54 | gE | 17.13 | 18.20 | 1.07 | 0.05 | 0.57 | 359.79 | 382.67 | -28.6 | 34.8 | 2.91 | 2.910 | |
| 14 30 38.250 | +31 59 17.49 | * | 17.41 | 18.13 | 0.72 | 0.03 | 0.21 | 1.33 | 1.26 | -26.9 | 31.7 | 0.53 | 1.377 | |
| 14 31 20.533 | +39 52 41.20 | * | 15.66 | 16.63 | 0.97 | 0.03 | 0.42 | 207.87 | 210.04 | -28.1 | 33.8 | 2.15 | 1.217 | |
| 14 31 25.884 | +24 42 20.53 | * | 16.63 | 17.04 | 0.42 | 0.08 | 0.27 | 88.27 | 91.21 | -25.1 | 32.5 | 2.05 | 0.408 | |
| 14 31 44.905 | +39 19 10.50 | * | 17.20 | 18.52 | 1.31 | 0.03 | 0.08 | 4.56 | 4.07 | -25.9 | 32.1 | 1.25 | 1.092 | |
| 14 31 57.947 | +34 16 50.28 | * | 16.43 | 16.76 | 0.33 | 0.04 | 0.11 | 1.22 | 0.65 | -26.6 | 31.1 | 0.02 | 0.704 | |
| 14 32 43.322 | +41 03 28.04 | * | 17.35 | 18.06 | 0.71 | 0.03 | 0.28 | 257.11 | 261.66 | -27.8 | 34.3 | 2.75 | 1.963 | |
| 14 34 01.123 | +40 50 14.29 | gE | 17.07 | 18.19 | 1.12 | 0.04 | 0.25 | 1.94 | 1.83 | -27.0 | 32.0 | 0.71 | 1.483 | |
| 14 34 44.944 | +23 17 43.01 | gO | 17.01 | 18.46 | 1.45 | 0.09 | 0.39 | 1.43 | 1.67 | -20.5 | 29.6 | 0.93 | 0.100 | X |
| 14 35 34.308 | +42 34 08.91 | * | 17.64 | 18.59 | 0.96 | 0.04 | 0.02 | 7.84 | 9.45 | -26.4 | 32.6 | 1.57 | 1.373 | |
| 14 37 19.203 | +38 04 37.85 | * | 17.49 | 17.46 | -0.02 | 0.02 | 0.16 | 34.25 | 35.08 | -26.9 | 32.9 | 1.72 | 1.043 | |
| 14 37 39.500 | +31 19 01.59 | * | 17.75 | 18.05 | 0.29 | 0.03 | 0.62 | 60.37 | 60.32 | -26.9 | 33.4 | 2.16 | 1.366 | o,No spec |
| 14 37 56.463 | +35 19 36.47 | * | 17.49 | 17.71 | 0.22 | 0.03 | 0.61 | 16.53 | 53.48 | -25.1 | 32.5 | 2.06 | 0.537 | o |
| 14 38 48.244 | +31 06 05.01 | gO | 17.74 | 18.73 | 0.99 | 0.04 | 1.07 | 1.01 | 0.74 | -24.8 | 31.1 | 0.72 | 0.737 | |
| 14 38 49.824 | +36 06 29.61 | * | 17.74 | 18.69 | 0.95 | 0.03 | 0.05 | 4.20 | 4.20 | -26.2 | 32.2 | 1.26 | 1.326 | |
| 14 39 10.820 | +24 55 03.28 | * | 17.60 | 18.18 | 0.59 | 0.09 | 0.13 | 22.48 | 24.27 | -27.3 | 33.1 | 1.79 | 1.646 | |
| 14 39 20.583 | +37 12 02.96 | * | 17.03 | 17.18 | 0.15 | 0.03 | 0.51 | 54.22 | 56.71 | -27.1 | 33.1 | 1.82 | 1.021 | |
| 14 40 50.099 | +33 33 50.23 | gE | 17.73 | 18.27 | 0.54 | 0.03 | 0.85 | 5.71 | 5.44 | -27.3 | 32.6 | 1.19 | 1.763 | |
| 14 41 16.812 | +27 16 34.45 | * | 17.04 | 17.46 | 0.41 | 0.06 | 0.32 | 42.49 | 44.44 | -27.3 | 33.2 | 1.80 | 1.252 | |
| 14 42 53.304 | +42 05 49.67 | * | 17.49 | 18.34 | 0.85 | 0.03 | 0.24 | 11.95 | 11.83 | -26.5 | 32.6 | 1.58 | 1.273 | |
| 14 47 33.052 | +34 55 06.82 | gO | 16.88 | 17.34 | 0.45 | 0.04 | 0.17 | 14.02 | 14.44 | -25.9 | 32.1 | 1.33 | 0.659 | X,I |
| 14 48 25.098 | +35 59 47.16 | gE | 14.95 | 16.06 | 1.11 | 0.03 | 0.27 | 1.44 | 1.48 | -23.2 | 29.6 | -0.09 | 0.113 | X,I |
| 14 50 12.144 | +30 25 51.61 | * | 17.66 | 18.81 | 1.16 | 0.05 | 0.26 | 10.19 | 10.60 | -25.9 | 32.5 | 1.72 | 1.220 | |
| 14 53 31.479 | +26 49 46.88 | * | 16.84 | 17.86 | 1.02 | 0.09 | 0.10 | 14.23 | 14.31 | -23.4 | 31.4 | 1.59 | 0.279 | |
| 14 53 42.862 | +23 34 00.43 | * | 17.71 | 18.61 | 0.90 | 0.09 | 0.26 | 3.28 | 4.86 | -24.5 | 31.6 | 1.37 | 0.614 | |
| 14 54 39.600 | +33 49 04.15 | * | 17.28 | 19.00 | 1.72 | 0.04 | 0.31 | 4.41 | 4.17 | -25.6 | 32.1 | 1.42 | 1.140 | |
| 14 55 43.419 | +30 03 22.48 | * | 16.15 | 16.59 | 0.44 | 0.06 | 0.61 | 1.80 | 1.41 | -26.5 | 31.2 | 0.13 | 0.626 | P1 |
| 14 57 05.181 | +27 07 57.26 | * | 16.64 | 16.85 | 0.21 | 0.08 | 0.51 | 1.64 | 1.22 | -29.6 | 32.3 | 0.03 | 2.522 | |
| 14 59 24.251 | +34 01 13.11 | * | 17.68 | 17.97 | 0.29 | 0.04 | 0.11 | 20.94 | 21.73 | -28.7 | 33.5 | 1.58 | 2.783 | |
| 14 59 58.475 | +33 37 01.57 | * | 17.01 | 17.11 | 0.10 | 0.04 | 0.33 | 7.22 | 11.57 | -26.0 | 32.0 | 1.15 | 0.635 | o,X |

TABLE 2—*Continued*

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | $M_B$ (11) | $\log L_R$ (12) | $\log R^*$ (13) | z (14) | Notes (15) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 03 21.388 | +23 30 59.52 | * | 17.49 | 17.67 | 0.18 | 0.12 | 0.45 | 2.24 | 1.82 | -24.4 | 30.9 | 0.69 | 0.404 | |
| 15 07 37.494 | +23 04 32.52 | gE | 17.40 | 18.20 | 0.80 | 0.14 | 0.41 | 17.67 | 17.81 | -24.2 | 31.9 | 1.79 | 0.465 | |
| 15 09 11.242 | +21 55 08.65 | * | 16.05 | 17.08 | 1.03 | 0.13 | 0.23 | 8.30 | 8.60 | -25.2 | 31.6 | 1.03 | 0.435 | |
| 15 14 02.520 | +28 13 34.68 | * | 17.06 | 17.73 | 0.67 | 0.09 | 0.22 | 63.29 | 65.05 | -27.6 | 33.5 | 2.05 | 1.545 | |
| 15 14 43.045 | +36 50 50.44 | * | 15.58 | 15.41 | -0.18 | 0.06 | 0.07 | 48.97 | 70.99 | -26.5 | 32.3 | 1.29 | 0.369 | o,X |
| 15 17 28.497 | +28 56 15.96 | * | 17.11 | 17.66 | 0.56 | 0.07 | 0.28 | 1.39 | 0.84 | -22.9 | 30.1 | 0.51 | 0.208 | P1 |
| 15 17 40.487 | +36 12 15.16 | * | 17.68 | 18.40 | 0.72 | 0.05 | 1.02 | 73.77 | 75.96 | -26.6 | 33.5 | 2.40 | 1.368 | |
| 15 19 36.152 | +28 38 27.93 | * | 16.51 | 17.20 | 0.70 | 0.07 | 0.53 | 2.08 | 1.99 | -24.0 | 30.5 | 0.49 | 0.269 | P1 |
| 15 23 14.434 | +37 59 28.71 | * | 17.37 | 18.41 | 1.04 | 0.04 | 0.65 | 1.67 | 1.83 | -26.5 | 31.9 | 0.78 | 1.344 | HiBAL |
| 15 23 50.435 | +39 14 04.83 | * | 15.93 | 16.93 | 1.00 | 0.05 | 0.63 | 3.75 | 4.07 | -26.3 | 31.6 | 0.61 | 0.657 | o,LoBAL |
| 15 25 23.587 | +42 01 16.98 | * | 17.12 | 17.79 | 0.66 | 0.07 | 0.46 | 104.19 | 122.19 | -26.9 | 33.6 | 2.38 | 1.198 | o |
| 15 27 01.830 | +24 52 49.71 | * | 16.87 | 17.48 | 0.61 | 0.12 | 0.84 | 1.40 | 1.22 | -26.7 | 31.5 | 0.33 | 0.993 | |
| 15 28 40.670 | +28 25 30.81 | * | 16.65 | 16.56 | -0.09 | 0.06 | 0.96 | 1.13 | 0.78 | -25.8 | 30.7 | -0.06 | 0.447 | o,X |
| 15 29 18.035 | +32 48 41.96 | * | 16.81 | 17.54 | 0.73 | 0.08 | 0.30 | 28.91 | 29.62 | -27.9 | 33.2 | 1.62 | 1.652 | |
| 15 30 36.351 | +23 52 36.92 | * | 16.31 | 16.02 | -0.29 | 0.14 | 0.31 | 19.26 | 22.52 | -28.1 | 32.7 | 0.96 | 0.951 | |
| 15 30 45.754 | +38 39 52.27 | * | 16.88 | 17.37 | 0.49 | 0.04 | 0.28 | 2.28 | 2.28 | -28.6 | 32.3 | 0.41 | 2.035 | o |
| 15 31 44.833 | +39 55 42.48 | * | 17.51 | 18.07 | 0.55 | 0.06 | 0.51 | 7.81 | 8.18 | -25.5 | 32.0 | 1.36 | 0.753 | |
| 15 31 59.120 | +24 20 47.26 | * | 16.83 | 16.37 | -0.46 | 0.13 | 0.17 | 11.33 | 11.13 | -26.8 | 32.0 | 0.84 | 0.631 | |
| 15 37 14.259 | +27 16 11.52 | * | 17.07 | 17.67 | 0.60 | 0.11 | 0.14 | 2.01 | 1.56 | -28.7 | 32.4 | 0.45 | 2.465 | |
| 15 37 31.022 | +33 58 36.43 | * | 17.17 | 17.74 | 0.57 | 0.08 | 0.46 | 5.27 | 5.58 | -26.6 | 32.1 | 1.03 | 1.025 | |
| 15 39 01.541 | +22 06 21.11 | * | 16.53 | 17.25 | 0.71 | 0.14 | 0.92 | 1.67 | 1.56 | -27.9 | 31.9 | 0.27 | 1.478 | |
| 15 40 37.650 | +30 53 35.26 | * | 17.02 | 17.47 | 0.45 | 0.07 | 0.27 | 1.22 | 0.54 | -26.5 | 31.3 | 0.28 | 0.895 | |
| 15 40 42.984 | +41 38 16.63 | * | 16.64 | 17.34 | 0.70 | 0.08 | 0.23 | 17.67 | 18.28 | -29.1 | 33.4 | 1.27 | 2.506 | |
| 15 41 06.740 | +24 53 02.11 | * | 17.43 | 17.79 | 0.36 | 0.13 | 0.15 | 21.79 | 22.41 | -28.0 | 33.2 | 1.58 | 1.894 | |
| 15 41 59.422 | +26 12 42.46 | * | 17.24 | 17.64 | 0.41 | 0.12 | 0.26 | 15.24 | 15.24 | -26.5 | 32.5 | 1.44 | 0.971 | |
| 15 42 27.020 | +29 42 02.50 | * | 17.50 | 18.06 | 0.55 | 0.07 | 0.04 | 1.54 | 1.35 | -24.3 | 30.9 | 0.67 | 0.457 | P1 |
| 15 42 41.141 | +29 34 29.22 | gE | 17.74 | 18.13 | 0.39 | 0.07 | 0.29 | 1.58 | 1.81 | -26.3 | 31.7 | 0.69 | 1.098 | P1 |
| 15 43 48.599 | +40 13 24.86 | * | 16.34 | 17.23 | 0.89 | 0.04 | 0.25 | 3.24 | 2.75 | -24.3 | 30.9 | 0.69 | 0.318 | X |
| 15 44 05.667 | +32 40 48.56 | * | 17.14 | 18.16 | 1.02 | 0.08 | 0.62 | 210.79 | 213.88 | -26.2 | 33.7 | 2.78 | 1.047 | |
| 15 44 45.028 | +37 13 08.97 | * | 17.48 | 18.13 | 0.65 | 0.05 | 0.55 | 602.99 | 628.57 | -26.0 | 34.1 | 3.25 | 0.971 | o |
| 15 45 10.997 | +34 52 46.94 | gO | 16.50 | 16.19 | -0.31 | 0.08 | 0.81 | 14.71 | 15.93 | -26.5 | 32.0 | 0.93 | 0.518 | o,X,I |
| 15 45 12.931 | +30 05 08.35 | * | 17.67 | 19.07 | 1.40 | 0.08 | 0.14 | 6.73 | 6.26 | -22.5 | 31.2 | 1.74 | 0.322 | P1 |
| 15 48 17.924 | +35 11 28.37 | * | 17.62 | 18.28 | 0.66 | 0.06 | 0.68 | 140.94 | 141.51 | -24.2 | 32.9 | 2.72 | 0.479 | o |
| 15 51 47.416 | +33 00 07.93 | * | 17.44 | 17.85 | 0.42 | 0.07 | 0.75 | 1.78 | 1.16 | -24.3 | 30.9 | 0.66 | 0.422 | X |
| 15 52 11.336 | +23 12 23.91 | * | 17.72 | 17.86 | 0.14 | 0.16 | 0.24 | 48.40 | 51.57 | -27.2 | 33.4 | 2.01 | 1.424 | |
| 15 52 19.148 | +36 34 35.53 | * | 17.78 | 18.62 | 0.83 | 0.06 | 0.31 | 35.73 | 40.54 | -26.6 | 33.3 | 2.20 | 1.500 | |
| 15 52 35.416 | +32 33 57.56 | * | 17.65 | 18.36 | 0.70 | 0.06 | 1.19 | 1.27 | 0.68 | -23.6 | 30.6 | 0.72 | 0.375 | |
| 15 54 29.403 | +30 01 19.04 | * | 17.09 | 17.93 | 0.85 | 0.09 | 0.16 | 40.04 | 41.22 | -28.7 | 33.8 | 1.85 | 2.686 | P1 |
| 15 54 35.232 | +32 46 47.17 | * | 17.44 | 18.06 | 0.63 | 0.07 | 0.60 | 1.73 | 1.37 | -24.8 | 31.1 | 0.71 | 0.566 | |
| 15 55 07.214 | +24 38 18.91 | gO | 17.30 | 17.29 | -0.01 | 0.14 | 0.86 | 1.02 | 1.32 | -27.3 | 31.6 | 0.22 | 1.155 | |
| 15 56 57.725 | +42 59 44.11 | gE | 17.25 | 17.96 | 0.70 | 0.04 | 0.19 | 68.79 | 73.24 | -27.6 | 33.7 | 2.17 | 1.740 | |
| 15 57 29.939 | +33 04 47.01 | * | 17.56 | 18.43 | 0.87 | 0.10 | 0.25 | 77.06 | 85.98 | -25.7 | 33.2 | 2.51 | 0.946 | o |
| 15 57 55.518 | +40 07 38.60 | * | 17.78 | 18.05 | 0.27 | 0.04 | 0.14 | 73.78 | 78.95 | -26.4 | 33.3 | 2.30 | 1.116 | |
| 15 58 55.160 | +33 23 18.80 | * | 16.87 | 18.17 | 1.30 | 0.08 | 0.30 | 142.96 | 144.89 | -27.3 | 33.9 | 2.56 | 1.655 | o |
| 16 02 26.882 | +27 41 41.59 | * | 17.35 | 18.19 | 0.84 | 0.11 | 0.08 | 15.87 | 17.83 | -25.9 | 32.5 | 1.73 | 0.934 | |
| 16 02 57.366 | +30 38 51.99 | * | 17.70 | 18.43 | 0.73 | 0.08 | 0.14 | 1.23 | 1.39 | -25.3 | 31.3 | 0.73 | 0.809 | P1 |
| 16 03 54.159 | +30 02 08.88 | * | 17.36 | 18.02 | 0.65 | 0.10 | 0.22 | 53.69 | 54.18 | -27.9 | 33.7 | 2.04 | 2.026 | o,HiBAL |
| 16 06 48.178 | +29 10 48.43 | * | 17.26 | 18.59 | 1.34 | 0.10 | 1.04 | 1.26 | 0.74 | -23.0 | 30.5 | 0.82 | 0.328 | P1 |
| 16 07 38.345 | +24 09 26.78 | * | 17.39 | 17.76 | 0.37 | 0.17 | 0.50 | 1.04 | 0.84 | -26.8 | 31.5 | 0.30 | 1.170 | |
| 16 08 39.099 | +35 42 26.74 | * | 17.69 | 18.25 | 0.56 | 0.06 | 0.30 | 1.63 | 1.65 | -26.1 | 31.6 | 0.71 | 1.044 | |
| 16 10 47.731 | +33 03 37.66 | gE | 14.36 | 15.47 | 1.11 | 0.05 | 0.82 | 6.86 | 6.21 | -23.4 | 30.2 | 0.35 | 0.097 | o,X |
| 16 11 17.929 | +39 33 50.21 | * | 17.56 | 18.27 | 0.70 | 0.03 | 1.10 | 1.00 | 2.04 | -27.3 | 32.1 | 0.74 | 1.722 | |
| 16 11 23.237 | +29 59 47.48 | * | 17.63 | 18.76 | 1.12 | 0.08 | 0.38 | 1.69 | 1.90 | -26.8 | 32.1 | 0.91 | 1.711 | P1 |
| 16 13 18.000 | +29 35 16.52 | * | 17.77 | 18.60 | 0.82 | 0.10 | 0.78 | 1.10 | 1.06 | -26.8 | 31.8 | 0.61 | 1.632 | |
| 16 13 41.058 | +34 12 47.83 | * | 17.67 | 17.90 | 0.23 | 0.05 | 0.18 | 3532.04 | 3605.54 | -27.2 | 35.2 | 3.87 | 1.404 | o |
| 16 14 36.828 | +28 39 06.03 | gO | 17.33 | 19.16 | 1.83 | 0.14 | 0.25 | 2.22 | 1.31 | -22.4 | 30.7 | 1.29 | 0.316 | P1 |
| 16 14 41.694 | +23 12 40.71 | * | 16.50 | 17.48 | 0.97 | 0.31 | 0.23 | 4.55 | 4.33 | -23.9 | 31.0 | 0.94 | 0.295 | |
| 16 14 46.956 | +37 46 07.32 | * | 16.08 | 16.64 | 0.56 | 0.04 | 0.21 | 49.26 | 51.11 | -28.6 | 33.4 | 1.50 | 1.532 | |
| 16 16 02.577 | +30 23 39.81 | * | 17.77 | 18.87 | 1.10 | 0.07 | 0.12 | 253.09 | 256.59 | -27.5 | 34.5 | 3.03 | 2.453 | |
| 16 18 06.311 | +42 25 31.88 | * | 17.50 | 18.55 | 1.05 | 0.03 | 0.24 | 27.18 | 28.30 | -25.5 | 32.7 | 2.07 | 0.937 | |
| 16 19 02.507 | +30 30 51.47 | gE | 16.33 | 17.43 | 1.10 | 0.08 | 0.64 | 66.82 | 67.58 | -27.4 | 33.4 | 1.97 | 1.284 | P1 |
| 16 20 23.345 | +25 24 20.35 | * | 16.63 | 17.84 | 1.21 | 0.14 | 0.96 | 1.18 | 1.23 | -21.8 | 29.7 | 0.54 | 0.138 | |
| 16 22 19.851 | +32 04 24.68 | * | 17.30 | 17.83 | 0.53 | 0.06 | 0.73 | 1.36 | 0.91 | -26.3 | 31.4 | 0.46 | 0.968 | |
| 16 23 07.368 | +30 04 06.39 | gO | 16.73 | 16.95 | 0.22 | 0.08 | 0.15 | 1.65 | 1.04 | -27.7 | 31.7 | 0.17 | 1.165 | P1 |
| 16 23 18.923 | +40 22 58.29 | * | 17.31 | 17.75 | 0.44 | 0.02 | 0.22 | 8.63 | 8.66 | -26.3 | 32.2 | 1.24 | 0.907 | o |
| 16 23 19.933 | +41 17 02.80 | * | 16.34 | 17.13 | 0.79 | 0.02 | 0.27 | 3.23 | 2.98 | -28.3 | 32.3 | 0.49 | 1.618 | o |
| 16 23 30.567 | +35 59 33.12 | * | 17.75 | 18.13 | 0.38 | 0.03 | 0.39 | 259.58 | 266.83 | -25.8 | 33.6 | 2.89 | 0.867 | o |
| 16 24 22.001 | +39 24 41.02 | gO | 17.58 | 18.22 | 0.64 | 0.02 | 0.16 | 132.32 | 144.52 | -26.3 | 33.6 | 2.63 | 1.117 | o |
| 16 25 48.793 | +26 46 58.76 | * | 16.79 | 16.76 | -0.04 | 0.09 | 0.05 | 10.12 | 9.69 | -29.7 | 33.1 | 0.78 | 2.521 | o |
| 16 26 59.251 | +30 15 34.96 | * | 16.93 | 17.69 | 0.76 | 0.07 | 0.15 | 5.34 | 5.42 | -27.7 | 32.5 | 0.95 | 1.582 | P1 |
| 16 27 51.993 | +22 24 04.76 | gE | 17.70 | 18.02 | 0.31 | 0.13 | 0.30 | 2.65 | 2.43 | -26.9 | 32.0 | 0.79 | 1.313 | |

TABLE 2—*Continued*

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | $M_B$ (11) | log$L_R$ (12) | log$R^*$ (13) | z (14) | Notes (15) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 29 01.315 | +40 07 59.62 | * | 17.70 | 17.99 | 0.30 | 0.02 | 0.08 | 11.97 | 11.94 | -23.2 | 31.3 | 1.57 | 0.271 | o,X |
| 16 30 20.768 | +37 56 56.49 | * | 17.60 | 17.39 | -0.21 | 0.03 | 0.05 | 20.00 | 21.73 | -24.7 | 31.9 | 1.57 | 0.395 | o |
| 16 32 06.185 | +26 51 12.91 | * | 17.61 | 18.25 | 0.64 | 0.15 | 0.54 | 9.95 | 10.14 | -27.2 | 32.8 | 1.44 | 1.628 | |
| 16 32 21.067 | +26 43 53.45 | * | 17.47 | 17.77 | 0.30 | 0.14 | 0.45 | 301.88 | 314.48 | -28.8 | 34.7 | 2.67 | 2.673 | |
| 16 32 23.757 | +29 14 42.19 | * | 17.46 | 18.01 | 0.55 | 0.06 | 0.46 | 5.56 | 5.32 | -23.6 | 31.1 | 1.23 | 0.326 | |
| 16 33 02.096 | +39 24 27.62 | * | 15.60 | 16.60 | 1.00 | 0.02 | 0.34 | 41.29 | 54.38 | -27.7 | 33.1 | 1.57 | 1.021 | o |
| 16 33 02.680 | +23 49 28.64 | * | 15.35 | 15.97 | 0.62 | 0.21 | 0.18 | 3.62 | 3.44 | -27.8 | 31.7 | 0.16 | 0.822 | o,X |
| 16 33 23.580 | +35 44 08.35 | * | 17.50 | 17.94 | 0.44 | 0.05 | 0.88 | 1.42 | 0.93 | -27.6 | 31.9 | 0.46 | 1.692 | |
| 16 33 48.924 | +31 34 11.66 | * | 16.98 | 17.31 | 0.32 | 0.08 | 0.75 | 1.79 | 2.07 | -27.9 | 32.0 | 0.38 | 1.516 | |
| 16 34 12.779 | +32 03 35.45 | * | 16.58 | 16.93 | 0.35 | 0.08 | 0.05 | 175.25 | 176.52 | -29.4 | 34.3 | 2.10 | 2.341 | |
| 16 35 15.483 | +38 08 04.56 | * | 17.78 | 18.05 | 0.27 | 0.03 | 0.14 | 2653.87 | 2694.06 | -27.6 | 35.3 | 3.77 | 1.811 | o |
| 16 37 09.325 | +41 40 30.63 | * | 16.76 | 17.19 | 0.43 | 0.02 | 0.09 | 7.37 | 7.11 | -26.4 | 32.0 | 0.96 | 0.765 | o |
| 16 37 55.228 | +25 09 30.49 | * | 17.58 | 17.80 | 0.22 | 0.10 | 0.36 | 26.99 | 27.92 | -26.7 | 32.9 | 1.75 | 1.110 | |
| 16 39 31.800 | +39 08 45.40 | gE | 17.00 | 17.76 | 0.76 | 0.03 | 0.25 | 1.27 | 0.72 | -22.0 | 29.8 | 0.52 | 0.143 | X |
| 16 41 25.123 | +35 50 20.29 | gO | 17.31 | 16.90 | -0.41 | 0.06 | 0.20 | 1.07 | 0.63 | -28.2 | 31.7 | -0.06 | 1.438 | |
| 16 41 52.295 | +30 58 51.79 | * | 17.57 | 18.70 | 1.14 | 0.07 | 0.16 | 2.14 | 2.66 | -27.2 | 32.4 | 1.01 | 2.000 | LoBAL |
| 16 41 54.244 | +40 00 32.00 | * | 17.48 | 17.86 | 0.38 | 0.03 | 1.19 | 6.89 | 5.06 | -26.4 | 32.2 | 1.18 | 1.003 | o |
| 16 42 18.951 | +31 54 33.83 | * | 17.39 | 17.73 | 0.34 | 0.06 | 0.12 | 23.08 | 24.01 | -27.1 | 32.9 | 1.64 | 1.263 | |
| 16 42 40.405 | +25 23 07.64 | * | 17.54 | 17.65 | 0.10 | 0.16 | 0.21 | 490.22 | 504.69 | -27.9 | 34.5 | 2.89 | 1.725 | |
| 16 42 58.799 | +39 48 37.16 | * | 15.30 | 15.84 | 0.54 | 0.04 | 0.25 | 6050.06 | 6598.61 | -27.2 | 34.7 | 3.40 | 0.595 | o,X,I |
| 16 43 47.901 | +30 11 08.80 | * | 16.57 | 17.07 | 0.50 | 0.08 | 0.04 | 1.42 | 1.38 | -27.9 | 31.8 | 0.14 | 1.380 | |
| 16 44 42.536 | +26 19 13.19 | * | 17.02 | 17.21 | 0.19 | 0.21 | 0.22 | 87.53 | 90.80 | -22.6 | 31.6 | 2.16 | 0.145 | o,X |
| 16 45 52.122 | +22 44 49.97 | * | 17.34 | 17.85 | 0.51 | 0.13 | 0.36 | 2.30 | 1.94 | -28.8 | 32.5 | 0.56 | 2.725 | |
| 16 48 02.393 | +24 29 16.84 | gO | 17.50 | 18.45 | 0.95 | 0.22 | 0.30 | 259.71 | 269.91 | -25.2 | 33.6 | 3.03 | 0.797 | |
| 16 50 05.487 | +41 40 32.60 | * | 17.18 | 17.10 | -0.08 | 0.05 | 0.22 | 170.28 | 185.19 | -25.9 | 33.2 | 2.35 | 0.584 | o,X |
| 16 51 37.565 | +40 02 18.71 | * | 16.92 | 17.18 | 0.25 | 0.05 | 0.53 | 42.73 | 43.90 | -29.1 | 33.7 | 1.60 | 2.316 | |
| 16 52 52.591 | +36 00 57.21 | * | 17.54 | 18.82 | 1.28 | 0.04 | 0.59 | 1.36 | 2.22 | -22.4 | 30.6 | 1.16 | 0.281 | |
| 16 52 55.932 | +31 23 43.86 | gE | 17.69 | 17.57 | -0.12 | 0.08 | 0.35 | 1.16 | 1.47 | -25.4 | 31.1 | 0.44 | 0.590 | |
| 16 55 00.223 | +30 30 40.60 | * | 17.16 | 17.27 | 0.11 | 0.09 | 0.38 | 3.20 | 2.86 | -24.8 | 31.1 | 0.68 | 0.405 | |
| 16 55 28.515 | +24 49 51.52 | * | 17.73 | 18.36 | 0.63 | 0.13 | 0.60 | 2.06 | 1.99 | -26.4 | 31.8 | 0.83 | 1.239 | |
| 16 55 43.235 | +39 45 19.91 | * | 17.74 | 18.11 | 0.37 | 0.05 | 0.13 | 10.15 | 10.16 | -27.5 | 32.8 | 1.38 | 1.747 | HiBAL |
| 16 55 57.366 | +32 18 05.91 | * | 17.25 | 17.80 | 0.55 | 0.08 | 0.90 | 1.10 | 1.19 | -27.1 | 31.7 | 0.35 | 1.327 | |
| 16 56 38.976 | +26 51 19.70 | * | 17.35 | 17.86 | 0.51 | 0.20 | 0.98 | 1.72 | 1.16 | -25.5 | 31.3 | 0.61 | 0.706 | |
| 16 57 22.105 | +39 55 51.61 | * | 17.39 | 17.73 | 0.34 | 0.05 | 0.30 | 1.19 | 0.77 | -25.2 | 31.0 | 0.41 | 0.579 | |
| 16 57 44.598 | +42 57 31.31 | * | 17.56 | 17.82 | 0.26 | 0.06 | 0.61 | 1.10 | 1.28 | -26.4 | 31.4 | 0.43 | 0.992 | |
| 16 58 01.401 | +34 43 28.51 | * | 17.77 | 17.78 | 0.01 | 0.05 | 0.43 | 406.35 | 444.06 | -28.0 | 34.5 | 2.87 | 1.925 | o |
| 16 59 24.186 | +26 29 37.29 | gE | 17.78 | 18.02 | 0.24 | 0.12 | 0.68 | 391.07 | 538.46 | -25.7 | 33.9 | 3.16 | 0.794 | o |
| 16 59 31.926 | +37 35 28.97 | * | 17.21 | 17.14 | -0.07 | 0.06 | 0.15 | 18.31 | 18.57 | -26.5 | 32.4 | 1.34 | 0.775 | |
| 17 00 36.332 | +34 14 14.91 | * | 17.35 | 17.24 | -0.11 | 0.06 | 0.21 | 1.16 | 0.70 | -26.4 | 31.2 | 0.18 | 0.796 | |
| 17 01 58.260 | +22 26 41.49 | gE | 16.68 | 18.42 | 1.74 | 0.14 | 0.50 | 5.90 | 5.48 | -22.0 | 30.7 | 1.44 | 0.197 | |
| 17 02 31.030 | +32 47 19.65 | * | 15.84 | 15.74 | -0.10 | 0.06 | 0.35 | 1.82 | 1.52 | -24.3 | 30.0 | -0.13 | 0.163 | o,X |
| 17 02 48.890 | +42 16 32.99 | * | 17.26 | 18.22 | 0.96 | 0.05 | 0.16 | 3.63 | 3.72 | -25.0 | 31.5 | 1.09 | 0.653 | |
| 17 03 22.806 | +27 57 12.93 | * | 17.72 | 17.92 | 0.20 | 0.22 | 0.48 | 1.19 | 0.97 | -25.3 | 31.1 | 0.48 | 0.666 | |
| 17 04 46.476 | +38 02 06.53 | * | 16.27 | 16.58 | 0.31 | 0.08 | 0.71 | 2.57 | 2.14 | -21.3 | 29.4 | 0.37 | 0.063 | |
| 17 06 34.158 | +36 15 08.01 | * | 17.72 | 17.98 | 0.26 | 0.08 | 0.21 | 18.85 | 19.19 | -26.0 | 32.6 | 1.68 | 0.918 | o,new *z* |
| 17 06 48.061 | +32 14 22.68 | * | 16.28 | 16.71 | 0.43 | 0.11 | 0.28 | 36.32 | 38.71 | -27.7 | 33.0 | 1.46 | 1.070 | o,new *z* |
| 17 08 04.245 | +38 03 25.28 | gO | 17.74 | 18.91 | 1.18 | 0.11 | 0.14 | 1.71 | 2.06 | -22.6 | 30.7 | 1.16 | 0.312 | |
| 17 08 23.134 | +41 23 09.53 | * | 16.79 | 17.11 | 0.33 | 0.07 | 0.43 | 1.23 | 0.94 | -26.7 | 31.3 | 0.15 | 0.837 | |
| 17 09 06.105 | +42 01 57.49 | * | 17.57 | 18.19 | 0.61 | 0.06 | 0.54 | 5.61 | 5.67 | -23.3 | 31.1 | 1.31 | 0.307 | |
| 17 10 13.430 | +33 44 02.76 | gE | 15.15 | 15.89 | 0.74 | 0.07 | 0.82 | 4.05 | 4.60 | -24.7 | 30.7 | 0.32 | 0.208 | o,X |
| 17 13 04.476 | +35 23 33.43 | * | 15.74 | 16.73 | 0.99 | 0.08 | 0.24 | 11.13 | 11.24 | -21.8 | 30.2 | 1.07 | 0.083 | X |
| 17 15 50.369 | +41 03 37.47 | gO | 17.56 | 17.49 | -0.06 | 0.08 | 0.24 | 1.28 | 0.77 | -25.7 | 31.1 | 0.34 | 0.650 | |
| 17 16 01.918 | +31 12 13.79 | gE | 14.47 | 15.14 | 0.67 | 0.09 | 0.19 | 2.68 | 2.42 | -24.0 | 29.9 | -0.20 | 0.110 | o,X,I |
| 17 16 53.670 | +23 05 53.44 | * | 17.04 | 17.55 | 0.51 | 0.12 | 0.54 | 34.07 | 34.42 | -27.7 | 33.2 | 1.70 | 1.536 | |
| 17 16 54.191 | +30 27 01.53 | * | 16.54 | 16.83 | 0.28 | 0.12 | 0.19 | 4.25 | 3.96 | -26.7 | 31.7 | 0.58 | 0.751 | |
| 17 17 28.606 | +24 52 56.59 | gO | 15.53 | 16.22 | 0.69 | 0.14 | 0.36 | 1.65 | 1.60 | -26.0 | 30.8 | -0.03 | 0.434 | |
| 17 18 20.922 | +42 49 14.05 | gE | 17.34 | 17.77 | 0.44 | 0.06 | 0.14 | 2.55 | 2.44 | -22.3 | 30.2 | 0.83 | 0.167 | |
| 17 18 50.343 | +30 42 01.31 | * | 17.44 | 18.26 | 0.81 | 0.11 | 0.49 | 1.25 | 0.64 | -23.0 | 30.3 | 0.69 | 0.280 | |
| 17 19 34.182 | +25 10 58.46 | gE | 15.38 | 16.61 | 1.23 | 0.14 | 0.33 | 12.67 | 13.83 | -26.3 | 32.0 | 1.03 | 0.579 | o |
| 17 19 38.732 | +29 18 54.85 | * | 17.18 | 17.95 | 0.77 | 0.10 | 1.04 | 6.23 | 7.53 | -26.7 | 32.4 | 1.23 | 1.197 | |
| 17 20 07.694 | +36 54 39.24 | * | 16.69 | 17.63 | 0.94 | 0.13 | 0.04 | 3.42 | 3.34 | -24.0 | 30.9 | 0.87 | 0.332 | |
| 17 21 09.519 | +35 42 15.74 | * | 16.42 | 17.02 | 0.60 | 0.11 | 0.60 | 386.51 | 392.99 | -24.3 | 32.9 | 2.69 | 0.283 | o,new *z*,X |
| 17 23 20.803 | +34 17 57.86 | gE | 14.82 | 15.04 | 0.22 | 0.10 | 0.45 | 438.57 | 441.20 | -25.5 | 32.6 | 1.97 | 0.205 | o,X |
| 17 23 54.273 | +37 48 41.62 | * | 17.44 | 18.22 | 0.78 | 0.11 | 0.51 | 1.70 | 1.72 | -25.6 | 31.4 | 0.74 | 0.828 | |
| 17 26 35.129 | +32 13 22.89 | * | 17.05 | 17.53 | 0.48 | 0.12 | 0.14 | 120.94 | 123.67 | -26.9 | 33.5 | 2.29 | 1.094 | o |
| 17 28 24.109 | +42 45 08.99 | * | 17.62 | 18.59 | 0.97 | 0.06 | 0.53 | 1.27 | 0.70 | -25.0 | 31.2 | 0.76 | 0.768 | |
| 17 28 59.130 | +38 38 26.36 | * | 16.61 | 16.76 | 0.15 | 0.10 | 0.11 | 240.27 | 245.41 | -28.3 | 34.0 | 2.25 | 1.391 | o |
| 17 34 03.469 | +40 37 53.11 | * | 15.91 | 16.27 | 0.36 | 0.12 | 1.00 | 1.07 | 2.53 | -25.5 | 30.9 | 0.19 | 0.356 | |

NOTE.—Descriptions of table columns:
Cols 1–2: FIRST radio positions (J2000).
Col 3: Optical morphology in the APM catalog. *: stellar on both plates, gE: nonstellar on E plate, gO: nonstellar on O plate.
Cols 4–6: Extinction-corrected APM magnitudes and color.
Col 7: Extinction correction (magnitudes) that was applied to E. The correction for O is 1.63 times larger.
Col 8: Separation between radio and optical positions (arcsec.)
Cols 9-10: 20 cm peak (col. 9) and integrated (col. 10) flux densities in mJy from the FIRST catalog.
Col 11: Absolute B magnitude.
Col 12: Log of radio luminosity (erg cm$^{-2}$ s$^{-1}$ Hz$^{-1}$) at a rest-frame frequency of 5 GHz, assuming spectral index $\alpha = -0.5$ ($F_\nu \propto \nu^\alpha$).
Col 13: $K$-corrected 5 GHz radio to 2500 A optical luminosity ratio using the definition of Stocke et al. (1992).
Col 14: Redshift.
Col 15: Notes on individual objects. *o*: Previously known QSO from Véron-Cetty & Véron (1998) catalog or, for 11 objects, from the most recent Hamburg catalog (Hagen, Engels & Reimers 1999). *No spec*: A previously known quasar for which no spectrum appears in Fig. 12. *P1*: From FBQS Paper 1. *O(APS), E(APS)*: Object was missing from APM catalog on the indicated plate, so magnitude from APS catalog was used. *X*: X-ray source in ROSAT BSC (Voges et al. 1996). *I*: Infrared source in IRAS FSC (Moshir et al. 1992). *HiBAL, LoBAL, FeLoBAL*: Object shows broad absorption lines from high-ionization, low-ionization, or iron + low-ionization elements. If followed by *?*, the object fails the "balnicity" test (Weymann et al. 1991) but may nonetheless be a BAL. *dmpL*$\alpha$: Object shows damped Ly$\alpha$ absorption. *grav.lens*: Object is gravitationally lensed (Schechter et al. 1998). *?*: Quasar classification is considered uncertain. *z?*: Redshift is considered uncertain. *new z*: Newly determined redshift for previously known object. *new pos*: Newly determined position for previously known object. *B=mm.m*: *B* magnitude from NED is given (when available) for objects with bright APM magnitudes. Note that $M_B$ is still computed from the APM O magnitude in these cases.

TABLE 3
NARROW-LINE AGN IN FBQS CANDIDATE LIST

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | $M_B$ (11) | $\log L_R$ (12) | $\log R^*$ (13) | z (14) | Notes (15) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 07 06 25.149 | +39 01 51.58 | * | 16.73 | 17.65 | 0.93 | 0.26 | 0.12 | 5.58 | 5.44 | -21.0 | 30.0 | 1.13 | 0.086 | |
| 07 10 03.644 | +42 17 03.07 | gO | 16.95 | 18.87 | 1.92 | 0.19 | 0.53 | 2.05 | 1.69 | -20.6 | 29.9 | 1.18 | 0.124 | |
| 07 30 53.727 | +29 38 17.52 | * | 17.33 | 18.82 | 1.49 | 0.17 | 0.85 | 1.12 | 0.81 | -21.0 | 29.8 | 0.89 | 0.150 | |
| 07 49 32.953 | +28 34 06.66 | gO | 17.39 | 18.80 | 1.41 | 0.09 | 0.29 | 27.33 | 27.95 | -22.9 | 31.9 | 2.24 | 0.340 | I |
| 07 55 16.716 | +39 29 20.20 | * | 15.54 | 17.12 | 1.58 | 0.14 | 0.16 | 1.17 | 1.03 | -21.2 | 29.2 | 0.24 | 0.075 | |
| 07 58 20.974 | +39 23 35.80 | gE | 17.60 | 18.37 | 0.77 | 0.16 | 0.22 | 4.40 | 4.41 | -22.3 | 30.7 | 1.29 | 0.216 | |
| 07 59 02.391 | +28 27 56.22 | gE | 17.53 | 19.31 | 1.78 | 0.10 | 0.94 | 1.15 | 1.62 | -21.3 | 30.2 | 1.24 | 0.214 | |
| 08 04 08.091 | +39 47 28.18 | gE | 16.99 | 18.62 | 1.64 | 0.13 | 0.76 | 1.35 | 0.72 | -20.5 | 29.6 | 0.90 | 0.110 | |
| 08 04 55.724 | +38 33 49.59 | gE | 16.34 | 18.21 | 1.86 | 0.12 | 0.09 | 1.33 | 0.80 | -20.8 | 29.5 | 0.73 | 0.104 | |
| 08 29 44.336 | +22 25 27.46 | gE | 9.67 | 9.83 | 0.16 | 0.11 | 0.52 | 2.18 | 2.82 | -26.1 | 28.6 | -2.28 | 0.025 | I,B=15 |
| 08 32 07.835 | +40 34 52.73 | gO | 16.13 | 17.15 | 1.02 | 0.12 | 0.23 | 2.30 | 1.87 | -22.3 | 29.9 | 0.54 | 0.128 | I |
| 08 34 07.608 | +29 08 39.95 | gE | 17.20 | 18.90 | 1.70 | 0.11 | 0.28 | 2.53 | 1.75 | -20.8 | 30.1 | 1.28 | 0.141 | |
| 08 37 26.580 | +40 02 07.57 | gO | 7.94 | 9.38 | 1.44 | 0.11 | 0.95 | 2.49 | 3.39 | -26.4 | 28.6 | -2.38 | 0.024 | I,B=14.7 |
| 08 37 26.918 | +31 21 04.71 | gE | 16.60 | 17.37 | 0.77 | 0.12 | 0.18 | 1.45 | 1.57 | -22.9 | 30.1 | 0.45 | 0.179 | |
| 08 39 46.113 | +22 51 00.46 | gE | 17.42 | 19.03 | 1.61 | 0.10 | 0.14 | 2.29 | 2.16 | -21.2 | 30.2 | 1.28 | 0.176 | |
| 08 42 15.215 | +40 25 33.12 | gO | 14.54 | 15.88 | 1.34 | 0.09 | 0.83 | 1.68 | 1.13 | -21.7 | 29.1 | -0.09 | 0.055 | I |
| 08 43 22.477 | +41 33 49.67 | * | 17.38 | 19.06 | 1.68 | 0.09 | 0.15 | 1.77 | 1.35 | -21.5 | 30.2 | 1.17 | 0.205 | |
| 08 44 58.300 | +30 56 38.36 | gE | 16.88 | 18.56 | 1.68 | 0.14 | 0.35 | 1.85 | 1.48 | -19.4 | 29.2 | 1.02 | 0.065 | |
| 08 45 29.171 | +38 54 59.76 | gO | 16.95 | 18.93 | 1.98 | 0.09 | 0.54 | 2.05 | 1.92 | -20.9 | 30.0 | 1.20 | 0.152 | |
| 08 50 38.142 | +30 39 32.07 | * | 17.41 | 18.84 | 1.44 | 0.10 | 0.52 | 1.86 | 1.55 | -21.3 | 30.1 | 1.12 | 0.172 | |
| 08 52 53.023 | +41 25 33.39 | * | 17.33 | 19.06 | 1.72 | 0.08 | 0.39 | 1.19 | 1.35 | -20.6 | 29.8 | 1.07 | 0.136 | |
| 09 13 36.157 | +24 47 54.28 | * | 17.47 | 18.99 | 1.52 | 0.12 | 0.25 | 7.55 | 7.60 | -20.8 | 30.6 | 1.79 | 0.147 | I |
| 09 14 43.475 | +30 59 35.73 | * | 17.49 | 19.40 | 1.91 | 0.06 | 0.12 | 5.38 | 5.52 | -22.1 | 31.1 | 1.79 | 0.306 | I |
| 09 19 02.230 | +26 16 11.94 | gO | 9.41 | 10.88 | 1.46 | 0.09 | 1.16 | 6.36 | 8.17 | -23.0 | 28.3 | -1.40 | 0.008 | I,B=14.2 |
| 09 20 34.293 | +38 19 34.64 | gO | 17.64 | 19.20 | 1.56 | 0.04 | 0.55 | 1.38 | 1.16 | -22.3 | 30.5 | 1.10 | 0.310 | |
| 09 39 25.100 | +27 20 34.27 | * | 17.76 | 19.39 | 1.62 | 0.06 | 0.13 | 1.55 | 1.14 | -19.3 | 29.4 | 1.27 | 0.089 | |
| 09 43 19.161 | +36 14 52.31 | gO | 10.57 | 10.50 | -0.07 | 0.03 | 0.16 | 73.77 | 74.91 | -25.1 | 29.9 | -0.59 | 0.022 | B=14.4 |
| 09 45 25.885 | +35 21 03.46 | gE | 17.20 | 18.22 | 1.03 | 0.03 | 0.19 | 140.45 | 147.55 | -22.3 | 32.2 | 2.76 | 0.207 | |
| 10 35 28.514 | +39 46 29.00 | gE | 17.57 | 19.21 | 1.64 | 0.04 | 0.72 | 1.18 | 0.76 | -20.1 | 29.6 | 1.07 | 0.117 | |
| 10 39 42.649 | +40 48 45.07 | * | 17.67 | 19.38 | 1.70 | 0.06 | 0.82 | 1.29 | 1.07 | -19.7 | 29.5 | 1.18 | 0.105 | |
| 10 40 00.596 | +39 07 20.10 | * | 9.17 | 8.08 | -1.09 | 0.04 | 0.05 | 11.05 | 13.15 | -28.3 | 29.5 | -2.31 | 0.031 | I,B=14.7 |
| 10 57 45.128 | +40 37 30.99 | gE | 17.20 | 18.35 | 1.15 | 0.03 | 0.17 | 1.01 | 0.89 | -21.6 | 29.8 | 0.66 | 0.160 | |
| 11 06 35.617 | +35 39 57.74 | gE | 16.60 | 17.94 | 1.33 | 0.05 | 0.51 | 2.84 | 3.04 | -21.2 | 29.9 | 0.98 | 0.110 | |
| 11 09 52.828 | +42 33 15.51 | * | 17.20 | 19.16 | 1.96 | 0.04 | 0.34 | 16.21 | 16.96 | -21.9 | 31.4 | 2.19 | 0.260 | I |
| 11 12 11.102 | +27 32 56.57 | * | 16.60 | 17.43 | 0.83 | 0.07 | 0.26 | 2.09 | 2.56 | -23.4 | 30.5 | 0.68 | 0.235 | E(APS),I |
| 11 40 52.870 | +23 25 13.63 | gE | 17.22 | 18.86 | 1.63 | 0.06 | 0.74 | 1.66 | 1.64 | -20.8 | 29.9 | 1.08 | 0.140 | |
| 11 53 31.189 | +22 37 53.55 | gO | 17.04 | 18.32 | 1.27 | 0.08 | 0.25 | 3.61 | 4.10 | -20.8 | 30.0 | 1.26 | 0.109 | I |
| 11 58 44.661 | +41 34 26.32 | gO | 17.05 | 18.45 | 1.41 | 0.04 | 0.29 | 1.18 | 1.09 | -21.1 | 29.7 | 0.77 | 0.130 | |
| 12 04 43.339 | +31 10 38.21 | gO | 9.68 | 10.58 | 0.90 | 0.05 | 0.91 | 5.10 | 7.59 | -25.3 | 29.0 | -1.55 | 0.025 | o,B=14.0 |
| 12 16 09.612 | +41 59 28.43 | gE | 16.34 | 17.16 | 0.81 | 0.05 | 0.16 | 18.28 | 18.42 | -23.7 | 31.4 | 1.42 | 0.240 | |
| 12 22 14.649 | +24 24 20.82 | gE | 16.84 | 18.46 | 1.63 | 0.06 | 0.30 | 2.74 | 2.67 | -20.9 | 30.0 | 1.14 | 0.120 | |
| 12 22 22.413 | +24 11 38.27 | gE | 16.93 | 18.82 | 1.89 | 0.05 | 0.83 | 1.33 | 2.08 | -20.4 | 29.8 | 1.17 | 0.116 | |
| 12 23 31.392 | +24 31 40.82 | * | 16.68 | 18.11 | 1.43 | 0.05 | 0.10 | 5.40 | 5.90 | -22.2 | 30.7 | 1.32 | 0.185 | |
| 12 30 16.047 | +35 33 40.78 | * | 17.10 | 18.73 | 1.63 | 0.04 | 1.00 | 1.95 | 1.70 | -21.0 | 30.0 | 1.10 | 0.144 | |
| 12 40 35.819 | +30 37 22.82 | gE | 17.22 | 18.97 | 1.75 | 0.04 | 0.43 | 1.20 | 2.17 | -21.8 | 30.4 | 1.23 | 0.224 | |
| 12 41 21.705 | +31 32 03.63 | gO | 16.94 | 18.17 | 1.23 | 0.04 | 0.08 | 2.83 | 2.98 | -20.0 | 29.5 | 1.07 | 0.072 | X |
| 12 44 17.498 | +30 04 43.77 | gE | 17.51 | 19.33 | 1.82 | 0.04 | 0.12 | 1.91 | 2.01 | -21.2 | 30.3 | 1.34 | 0.205 | |
| 12 55 21.802 | +42 19 04.90 | gE | 17.61 | 19.20 | 1.59 | 0.04 | 0.18 | 1.78 | 1.40 | -20.6 | 30.0 | 1.24 | 0.150 | |
| 13 20 18.246 | +39 07 22.56 | gE | 17.07 | 18.72 | 1.64 | 0.03 | 0.56 | 2.16 | 1.82 | -22.2 | 30.4 | 1.12 | 0.240 | |
| 13 31 10.974 | +41 46 31.36 | gE | 14.70 | 15.07 | 0.37 | 0.02 | 1.00 | 1.14 | 2.22 | -21.5 | 28.8 | -0.29 | 0.034 | I |
| 13 40 11.521 | +34 18 17.09 | * | 17.79 | 19.06 | 1.27 | 0.03 | 0.77 | 1.36 | 2.11 | -21.7 | 30.4 | 1.25 | 0.223 | |
| 13 43 21.372 | +23 20 38.81 | gE | 16.35 | 18.05 | 1.70 | 0.04 | 0.28 | 1.04 | 0.95 | -22.1 | 29.8 | 0.55 | 0.173 | |
| 13 47 17.745 | +34 08 55.32 | * | 7.44 | 8.23 | 0.79 | 0.06 | 1.02 | 2.14 | 3.84 | -26.7 | 28.3 | -2.78 | 0.016 | o,I,B=14.6 |
| 13 50 36.022 | +33 42 17.53 | gO | 7.86 | 8.91 | 1.05 | 0.07 | 0.63 | 97.21 | 99.73 | -25.7 | 29.6 | -1.10 | 0.014 | B=13.5 |
| 14 04 38.767 | +26 36 48.31 | * | 17.72 | 19.04 | 1.31 | 0.04 | 0.37 | 2.75 | 2.72 | -20.9 | 30.2 | 1.37 | 0.159 | |
| 14 16 36.927 | +24 30 09.17 | gO | 8.61 | 10.44 | 1.82 | 0.05 | 0.78 | 2.00 | 2.45 | -26.4 | 28.9 | -2.10 | 0.039 | I,B=15.2 |
| 14 32 36.352 | +37 52 51.03 | * | 17.61 | 19.58 | 1.97 | 0.02 | 0.95 | 1.26 | 1.16 | -20.5 | 29.9 | 1.24 | 0.168 | |
| 14 33 01.186 | +30 13 02.46 | gE | 17.21 | 18.48 | 1.27 | 0.05 | 0.63 | 2.51 | 2.75 | -20.7 | 29.9 | 1.15 | 0.110 | |
| 14 35 58.257 | +31 20 27.33 | gO | 16.89 | 18.41 | 1.52 | 0.04 | 0.13 | 10.76 | 10.97 | -19.4 | 30.0 | 1.73 | 0.060 | |
| 14 39 46.932 | +25 03 51.06 | gO | 17.10 | 18.43 | 1.33 | 0.08 | 0.58 | 1.53 | 2.02 | -20.9 | 29.8 | 1.00 | 0.120 | I |
| 14 52 19.762 | +26 50 10.28 | gO | 17.66 | 19.28 | 1.62 | 0.09 | 0.18 | 1.03 | 0.95 | -20.5 | 29.7 | 1.04 | 0.143 | |
| 14 52 58.979 | +33 00 05.44 | gE | 17.70 | 18.51 | 0.82 | 0.05 | 0.68 | 10.61 | 41.19 | -22.5 | 31.8 | 2.32 | 0.247 | |
| 14 53 25.217 | +34 18 02.27 | gO | 17.39 | 18.27 | 0.87 | 0.05 | 0.29 | 4.72 | 4.82 | -21.8 | 30.5 | 1.30 | 0.162 | |
| 14 55 19.410 | +32 26 01.52 | gO | 15.80 | 16.92 | 1.12 | 0.04 | 0.27 | 2.76 | 3.22 | -21.7 | 29.7 | 0.60 | 0.087 | |
| 15 00 11.399 | +28 53 22.22 | gO | 16.20 | 17.94 | 1.74 | 0.05 | 0.36 | 1.87 | 1.27 | -21.5 | 29.8 | 0.77 | 0.125 | |
| 15 01 36.561 | +32 07 13.26 | gO | 17.03 | 18.93 | 1.90 | 0.05 | 0.53 | 1.05 | 0.85 | -20.3 | 29.5 | 0.91 | 0.115 | |
| 15 04 27.131 | +35 29 16.66 | gE | 17.12 | 19.06 | 1.94 | 0.04 | 0.62 | 1.17 | 1.07 | -20.5 | 29.7 | 1.01 | 0.131 | |
| 15 17 32.271 | +22 39 22.77 | gE | 16.93 | 18.22 | 1.28 | 0.11 | 0.23 | 1.37 | 1.08 | -20.9 | 29.6 | 0.74 | 0.109 | |
| 15 20 22.470 | +26 32 07.58 | gO | 16.56 | 17.95 | 1.38 | 0.10 | 0.23 | 13.86 | 13.90 | -21.4 | 30.7 | 1.64 | 0.122 | |
| 15 24 35.839 | +27 42 21.72 | gO | 16.67 | 17.96 | 1.29 | 0.12 | 0.10 | 4.40 | 4.50 | -20.1 | 29.7 | 1.16 | 0.068 | |
| 15 27 31.736 | +38 43 08.03 | gE | 17.00 | 18.02 | 1.02 | 0.05 | 0.18 | 1.43 | 1.26 | -24.1 | 30.7 | 0.63 | 0.400 | |

TABLE 3—*Continued*

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | $M_B$ (11) | $\log L_R$ (12) | $\log R^*$ (13) | z (14) | Notes (15) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 38 38.490 | +36 57 29.89 | gO | 8.04 | 9.97 | 1.92 | 0.05 | 0.63 | 2.29 | 2.85 | -25.3 | 28.4 | -2.22 | 0.019 | I,B=14.7 |
| 15 42 47.701 | +30 05 12.32 | * | 17.74 | 18.99 | 1.25 | 0.07 | 0.30 | 5.23 | 5.19 | -20.5 | 30.3 | 1.63 | 0.127 | |
| 15 44 58.493 | +23 08 10.36 | * | 16.81 | 17.55 | 0.74 | 0.14 | 0.28 | 20.47 | 21.10 | -24.3 | 31.8 | 1.62 | 0.370 | |
| 15 50 59.392 | +39 50 30.04 | gE | 16.75 | 17.96 | 1.20 | 0.04 | 0.66 | 10.70 | 10.64 | -23.8 | 31.5 | 1.49 | 0.350 | |
| 15 55 11.010 | +27 00 56.11 | gO | 17.24 | 18.91 | 1.67 | 0.11 | 0.27 | 1.62 | 1.04 | -19.6 | 29.4 | 1.10 | 0.083 | |
| 15 55 22.049 | +28 13 23.35 | gE | 16.49 | 18.31 | 1.82 | 0.11 | 0.28 | 14.42 | 14.83 | -21.5 | 30.9 | 1.81 | 0.149 | |
| 16 00 46.973 | +40 34 22.96 | gE | 16.91 | 18.80 | 1.89 | 0.04 | 0.27 | 2.72 | 2.39 | -19.4 | 29.5 | 1.28 | 0.073 | I |
| 16 07 40.880 | +34 27 15.15 | gO | 15.99 | 17.82 | 1.84 | 0.05 | 0.25 | 1.19 | 0.87 | -20.6 | 29.2 | 0.53 | 0.079 | |
| 16 09 20.120 | +22 41 57.41 | gO | 17.10 | 18.75 | 1.65 | 0.22 | 0.77 | 1.57 | 3.50 | -22.8 | 30.9 | 1.33 | 0.320 | |
| 16 12 13.748 | +31 56 48.74 | gO | 16.06 | 17.53 | 1.47 | 0.07 | 0.97 | 6.24 | 7.04 | -22.8 | 30.7 | 1.17 | 0.185 | I |
| 16 13 36.819 | +23 39 49.41 | * | 17.15 | 17.77 | 0.63 | 0.27 | 0.16 | 3.64 | 3.21 | -22.1 | 30.3 | 0.98 | 0.149 | |
| 16 27 26.656 | +35 08 15.82 | gE | 17.65 | 19.04 | 1.39 | 0.06 | 0.07 | 1.33 | 0.80 | -21.3 | 30.0 | 1.04 | 0.190 | |
| 16 29 10.989 | +28 57 19.50 | gO | 17.06 | 18.97 | 1.90 | 0.06 | 0.12 | 1.13 | 0.64 | -20.9 | 29.8 | 0.95 | 0.151 | |
| 16 39 29.633 | +27 42 23.36 | gO | 16.62 | 18.49 | 1.87 | 0.18 | 0.26 | 3.53 | 4.08 | -21.1 | 30.2 | 1.32 | 0.133 | I |
| 16 45 41.190 | +22 00 00.24 | gE | 17.15 | 18.58 | 1.44 | 0.15 | 0.77 | 1.05 | 2.78 | -21.3 | 30.2 | 1.19 | 0.153 | I |
| 16 45 59.357 | +31 36 41.99 | gE | 16.92 | 18.48 | 1.55 | 0.08 | 0.31 | 1.36 | 1.95 | -22.0 | 30.2 | 0.98 | 0.199 | |
| 16 49 27.663 | +37 46 32.54 | gE | 16.68 | 17.98 | 1.29 | 0.07 | 0.56 | 1.10 | 0.98 | -22.1 | 29.8 | 0.54 | 0.167 | |
| 16 56 32.072 | +36 19 34.92 | gE | 17.20 | 19.15 | 1.95 | 0.04 | 0.42 | 1.37 | 1.81 | -20.7 | 30.0 | 1.23 | 0.150 | |
| 16 56 42.119 | +36 30 48.53 | gE | 16.93 | 18.62 | 1.69 | 0.04 | 0.59 | 1.39 | 1.46 | -21.1 | 29.8 | 0.93 | 0.140 | |
| 16 56 49.013 | +22 35 26.29 | gE | 17.53 | 19.38 | 1.85 | 0.20 | 0.84 | 1.05 | 1.50 | -20.8 | 30.0 | 1.24 | 0.178 | |
| 16 59 08.574 | +28 59 31.01 | gO | 9.19 | 9.15 | -0.04 | 0.11 | 1.18 | 3.54 | 6.07 | -27.3 | 29.1 | -2.22 | 0.032 | o,I,B=15.2 |
| 17 08 28.791 | +28 33 05.66 | gE | 16.28 | 18.06 | 1.77 | 0.19 | 0.51 | 1.77 | 1.41 | -20.6 | 29.5 | 0.80 | 0.087 | I |
| 17 13 22.635 | +32 56 28.10 | gE | 15.21 | 16.50 | 1.28 | 0.14 | 0.16 | 34.97 | 38.62 | -22.5 | 31.0 | 1.51 | 0.101 | X |
| 17 20 29.759 | +39 55 55.95 | gO | 16.84 | 18.19 | 1.35 | 0.10 | 0.82 | 2.03 | 2.33 | -22.2 | 30.3 | 0.95 | 0.190 | |
| 17 25 27.267 | +37 26 31.04 | gE | 16.89 | 18.74 | 1.85 | 0.11 | 0.28 | 1.10 | 1.04 | -18.1 | 28.6 | 0.87 | 0.039 | |

NOTE.—Table columns are same as Table 2.

TABLE 4
BL LACERTAE OBJECTS IN FBQS CANDIDATE LIST

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | $M_B$ (11) | $\log L_R$ (12) | $\log R^*$ (13) | z (14) | Notes (15) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 07 24 42.742 | +26 21 30.60 | gE | 16.74 | 17.64 | 0.89 | 0.22 | 0.54 | 1.24 | 1.15 | ··· | ··· | 0.49 | ··· | ? |
| 07 30 26.050 | +33 07 22.71 | * | 17.14 | 17.38 | 0.24 | 0.17 | 0.42 | 9.87 | 9.79 | ··· | ··· | 1.29 | ··· | X |
| 07 38 37.806 | +31 39 31.25 | gE | 16.88 | 18.12 | 1.25 | 0.13 | 1.12 | 6.40 | 6.97 | ··· | ··· | 1.44 | ··· | ? |
| 07 41 18.793 | +22 53 40.19 | gO | 16.34 | 17.21 | 0.88 | 0.13 | 0.96 | 1.29 | 1.50 | ··· | ··· | 0.41 | ··· | ?,I |
| 08 14 21.287 | +29 40 21.07 | * | 17.37 | 17.98 | 0.61 | 0.10 | 0.44 | 26.42 | 27.34 | ··· | ··· | 1.97 | ··· | o |
| 08 18 27.347 | +28 14 02.68 | gE | 17.16 | 18.11 | 0.95 | 0.07 | 0.22 | 80.90 | 84.12 | ··· | ··· | 2.51 | ··· | |
| 08 19 25.891 | +40 37 43.88 | gE | 17.74 | 19.33 | 1.58 | 0.14 | 0.08 | 77.37 | 79.55 | ··· | ··· | 2.98 | ··· | ? |
| 08 20 20.203 | +36 40 04.81 | * | 17.75 | 18.15 | 0.40 | 0.14 | 0.61 | 96.52 | 102.07 | ··· | ··· | 2.61 | ··· | |
| 08 33 53.885 | +42 24 01.79 | * | 17.08 | 18.37 | 1.30 | 0.07 | 0.16 | 229.81 | 243.78 | ··· | ··· | 3.08 | ··· | |
| 08 47 02.499 | +41 17 57.73 | gO | 16.59 | 17.97 | 1.38 | 0.07 | 0.38 | 1.03 | 0.77 | -21.5 | 29.6 | 0.52 | 0.129 | $Br_{4000}$=18% |
| 09 10 37.060 | +33 29 24.54 | gE | 16.44 | 16.56 | 0.12 | 0.06 | 0.53 | 102.94 | 106.23 | ··· | ··· | 2.00 | ··· | X |
| 09 10 52.033 | +39 02 02.05 | gE | 16.71 | 17.78 | 1.06 | 0.05 | 0.26 | 7.25 | 8.27 | ··· | ··· | 1.37 | ··· | |
| 09 15 52.398 | +29 33 24.14 | * | 15.35 | 15.83 | 0.47 | 0.07 | 0.19 | 324.36 | 356.43 | ··· | ··· | 2.23 | ··· | o,X |
| 10 12 44.288 | +42 29 57.01 | gE | 16.77 | 18.28 | 1.51 | 0.04 | 0.11 | 69.90 | 79.90 | ··· | ··· | 2.56 | ··· | o,X |
| 10 16 16.822 | +41 08 12.24 | gE | 17.32 | 18.99 | 1.67 | 0.05 | 0.15 | 14.98 | 16.57 | -22.3 | 31.5 | 2.10 | 0.281 | X,$Br_{4000}$=10% |
| 10 32 40.737 | +37 38 27.05 | * | 16.77 | 17.35 | 0.58 | 0.05 | 1.03 | 72.79 | 86.28 | ··· | ··· | 2.22 | ··· | |
| 10 43 09.033 | +24 08 35.46 | * | 16.30 | 17.69 | 1.40 | 0.08 | 0.10 | 359.68 | 369.54 | -25.2 | 33.4 | 2.89 | 0.560 | X,$W_\lambda$=5A |
| 10 54 31.897 | +38 55 21.71 | * | 16.64 | 16.93 | 0.29 | 0.05 | 0.21 | 72.06 | 73.07 | -28.1 | 33.5 | 1.79 | 1.363 | X,$W_\lambda$=5A |
| 10 57 23.103 | +23 03 18.87 | * | 17.74 | 19.26 | 1.52 | 0.05 | 0.41 | 6.28 | 6.73 | -22.7 | 31.3 | 1.80 | 0.379 | X,$Br_{4000}$=4% |
| 10 58 29.896 | +28 17 46.43 | * | 17.39 | 18.26 | 0.87 | 0.06 | 0.34 | 77.99 | 91.04 | ··· | ··· | 2.61 | ··· | ? |
| 11 00 21.083 | +40 19 27.68 | * | 17.44 | 18.16 | 0.72 | 0.02 | 0.31 | 14.88 | 15.47 | ··· | ··· | 1.80 | ··· | o,X |
| 11 04 27.324 | +38 12 31.60 | gO | 9.94 | 11.73 | 1.79 | 0.04 | 1.13 | 557.26 | 573.79 | -24.6 | 31.1 | 0.79 | 0.031 | o,X,B=13.3 |
| 11 09 16.165 | +24 11 20.13 | * | 16.91 | 17.76 | 0.86 | 0.05 | 0.26 | 25.63 | 31.02 | ··· | ··· | 1.94 | ··· | o |
| 11 10 56.838 | +35 39 07.21 | * | 17.43 | 18.07 | 0.64 | 0.05 | 0.24 | 7.52 | 6.85 | ··· | ··· | 1.45 | ··· | o |
| 11 17 40.407 | +25 48 46.53 | * | 17.16 | 17.92 | 0.77 | 0.05 | 0.33 | 9.92 | 10.05 | -23.9 | 31.5 | 1.45 | 0.360 | X,$Br_{4000}$=3% |
| 11 20 48.064 | +42 12 12.41 | * | 16.70 | 17.08 | 0.38 | 0.05 | 0.24 | 24.63 | 25.09 | -22.3 | 30.9 | 1.55 | 0.124 | o,X,$z$? |
| 11 29 50.143 | +26 52 53.27 | * | 16.19 | 16.81 | 0.62 | 0.05 | 0.74 | 1.58 | 1.81 | ··· | ··· | 0.33 | ··· | o |
| 11 36 50.128 | +25 50 52.45 | gE | 16.20 | 17.48 | 1.29 | 0.06 | 0.41 | 13.94 | 13.26 | -22.4 | 30.9 | 1.45 | 0.155 | X,$Br_{4000}$=22% |
| 11 50 19.220 | +24 17 53.73 | * | 16.72 | 17.57 | 0.85 | 0.07 | 0.26 | 721.89 | 751.10 | ··· | ··· | 3.25 | ··· | o,$z>0.2$ |
| 11 52 10.708 | +28 37 21.22 | * | 17.19 | 18.66 | 1.46 | 0.06 | 0.08 | 22.68 | 23.10 | ··· | ··· | 2.17 | ··· | |
| 11 53 42.906 | +38 23 05.92 | gE | 17.67 | 18.36 | 0.69 | 0.05 | 0.08 | 117.11 | 123.84 | ··· | ··· | 2.78 | ··· | ? |
| 12 09 22.798 | +41 19 41.45 | * | 16.77 | 17.47 | 0.70 | 0.04 | 0.16 | 397.21 | 398.39 | ··· | ··· | 2.93 | ··· | o,X |
| 12 17 52.085 | +30 07 00.46 | gE | 13.86 | 15.40 | 1.54 | 0.06 | 0.31 | 375.97 | 406.29 | -25.5 | 32.7 | 2.07 | 0.237 | o,X |
| 12 20 08.319 | +34 31 21.55 | * | 16.86 | 17.51 | 0.65 | 0.04 | 0.42 | 251.86 | 256.45 | ··· | ··· | 2.76 | ··· | o |
| 12 21 21.941 | +30 10 37.10 | gE | 15.52 | 16.58 | 1.06 | 0.06 | 0.11 | 60.66 | 63.03 | -23.7 | 31.7 | 1.74 | 0.182 | o,X,new $z$[a] |
| 12 24 24.179 | +24 36 23.52 | * | 16.73 | 17.38 | 0.65 | 0.06 | 0.05 | 21.93 | 23.40 | -23.3 | 31.4 | 1.62 | 0.218 | o,X |
| 12 26 04.124 | +26 04 28.01 | * | 17.23 | 18.37 | 1.14 | 0.05 | 0.38 | 9.64 | 10.84 | -21.8 | 30.9 | 1.69 | 0.176 | ?,X,$Br_{4000}$=24% |
| 12 30 14.099 | +25 18 07.13 | * | 15.97 | 16.87 | 0.90 | 0.05 | 0.32 | 225.99 | 231.69 | ··· | ··· | 2.46 | ··· | o,X |
| 12 36 23.025 | +39 00 01.09 | * | 17.55 | 18.64 | 1.08 | 0.04 | 0.52 | 34.94 | 36.54 | ··· | ··· | 2.36 | ··· | |
| 12 43 12.695 | +36 27 43.91 | * | 16.26 | 16.77 | 0.51 | 0.03 | 0.49 | 113.31 | 140.99 | ··· | ··· | 2.20 | ··· | X |
| 12 52 19.472 | +26 40 53.83 | * | 17.49 | 18.07 | 0.58 | 0.03 | 0.28 | 1.56 | 1.38 | ··· | ··· | 0.76 | ··· | ? |
| 12 57 16.578 | +36 47 15.18 | * | 16.35 | 17.59 | 1.24 | 0.04 | 0.61 | 65.93 | 73.86 | -23.7 | 32.1 | 2.20 | 0.280 | o,X |
| 13 01 45.674 | +40 56 24.78 | * | 17.77 | 18.68 | 0.91 | 0.05 | 0.35 | 25.53 | 26.59 | ··· | ··· | 2.24 | ··· | X |
| 13 14 43.804 | +23 48 26.82 | * | 15.68 | 16.70 | 1.02 | 0.03 | 0.08 | 168.97 | 174.76 | ··· | ··· | 2.26 | ··· | X |
| 13 54 26.699 | +37 06 54.75 | gE | 17.68 | 18.56 | 0.89 | 0.03 | 0.34 | 19.07 | 20.00 | ··· | ··· | 2.07 | ··· | |
| 14 14 09.281 | +34 30 57.58 | gE | 17.63 | 19.42 | 1.79 | 0.04 | 0.27 | 3.39 | 3.34 | -21.8 | 30.8 | 1.59 | 0.275 | $Br_{4000}$=21% |
| 14 26 07.716 | +34 04 26.29 | * | 16.94 | 17.46 | 0.52 | 0.04 | 0.18 | 33.51 | 35.70 | ··· | ··· | 1.88 | ··· | |
| 14 27 00.414 | +23 48 00.09 | * | 14.79 | 15.46 | 0.67 | 0.16 | 0.46 | 288.51 | 413.91 | ··· | ··· | 2.15 | ··· | o,X |
| 14 30 40.595 | +36 49 04.14 | * | 17.16 | 17.66 | 0.50 | 0.02 | 0.20 | 160.06 | 162.01 | -25.2 | 33.1 | 2.52 | 0.564 | $W_\lambda$=2A,$Br_{4000}$=10% |
| 14 39 17.498 | +39 32 42.86 | gE | 16.51 | 18.39 | 1.88 | 0.03 | 0.29 | 42.35 | 44.12 | ··· | ··· | 2.34 | ··· | o,X |
| 14 48 00.578 | +36 08 31.67 | * | 16.36 | 16.74 | 0.38 | 0.03 | 0.94 | 29.65 | 30.92 | ··· | ··· | 1.53 | ··· | o,X |
| 15 01 01.836 | +22 38 06.52 | * | 15.19 | 16.32 | 1.13 | 0.13 | 0.37 | 28.74 | 29.95 | -24.5 | 31.6 | 1.30 | 0.235 | o,X |
| 15 02 08.291 | +25 28 44.91 | * | 16.68 | 18.14 | 1.46 | 0.09 | 0.81 | 1.09 | 4.06 | -20.6 | 29.9 | 1.19 | 0.090 | ? |
| 15 02 33.971 | +33 50 55.84 | gE | 17.25 | 18.24 | 0.99 | 0.04 | 0.64 | 78.32 | 80.99 | ··· | ··· | 2.55 | ··· | |
| 15 15 56.188 | +24 26 20.28 | gE | 16.87 | 18.83 | 1.96 | 0.13 | 0.20 | 23.68 | 30.07 | -22.0 | 31.5 | 2.31 | 0.228 | $Br_{4000}$=17% |
| 15 30 44.062 | +23 10 13.50 | * | 17.13 | 17.32 | 0.19 | 0.15 | 0.28 | 5.13 | 4.55 | ··· | ··· | 0.98 | ··· | |
| 15 33 24.253 | +34 16 40.24 | * | 17.00 | 17.64 | 0.64 | 0.06 | 0.22 | 27.14 | 27.27 | ··· | ··· | 1.84 | ··· | o,X |
| 15 34 47.205 | +37 15 54.81 | gE | 16.24 | 18.18 | 1.94 | 0.05 | 0.15 | 21.75 | 22.14 | -21.5 | 31.0 | 1.93 | 0.138 | $Br_{4000}$=12%,$W_\lambda$=1A |
| 15 35 29.052 | +39 22 46.72 | gE | 16.73 | 18.46 | 1.73 | 0.05 | 0.27 | 19.20 | 20.14 | -22.6 | 31.5 | 1.98 | 0.257 | X,$Br_{4000}$=9% |
| 16 02 18.089 | +30 51 09.30 | * | 17.74 | 18.78 | 1.04 | 0.07 | 0.63 | 54.12 | 59.92 | ··· | ··· | 2.63 | ··· | O(APS),o,X |
| 16 17 06.360 | +41 06 46.97 | gE | 16.41 | 18.06 | 1.65 | 0.02 | 0.76 | 55.61 | 63.88 | -23.1 | 32.0 | 2.32 | 0.267 | X,$Br_{4000}$=3% |
| 16 45 57.715 | +29 47 30.20 | * | 17.80 | 18.03 | 0.23 | 0.10 | 0.49 | 4.59 | 4.55 | ··· | ··· | 1.22 | ··· | ? |
| 16 51 09.196 | +42 12 53.40 | * | 17.64 | 18.08 | 0.44 | 0.07 | 0.11 | 16.33 | 17.20 | ··· | ··· | 1.81 | ··· | |
| 16 52 49.928 | +40 23 09.93 | * | 16.60 | 17.13 | 0.53 | 0.05 | 0.32 | 16.82 | 17.66 | ··· | ··· | 1.44 | ··· | o |
| 17 01 24.628 | +39 54 37.08 | * | 16.73 | 17.77 | 1.04 | 0.07 | 0.47 | 250.98 | 254.93 | ··· | ··· | 2.86 | ··· | |
| 17 02 09.640 | +26 43 14.72 | * | 17.53 | 18.28 | 0.75 | 0.14 | 0.49 | 50.48 | 52.86 | ··· | ··· | 2.38 | ··· | |
| 17 02 38.546 | +31 15 43.50 | * | 17.58 | 17.97 | 0.39 | 0.09 | 0.09 | 5.54 | 5.81 | ··· | ··· | 1.30 | ··· | |
| 17 12 48.706 | +29 31 17.47 | * | 17.80 | 18.24 | 0.44 | 0.15 | 0.77 | 11.54 | 13.39 | ··· | ··· | 1.77 | ··· | [b] |

[a]New redshift for J122121.9+301037 from Perlman (private communication).

[b]J171248.7+293117 shows unidentified absorption feature at 3978 A.

NOTE.—Table columns are the same as in Table 2, except that there are additional notes in Col. 15:
$Br_{4000}$=*nn*%: Amplitude of 4000 A break; objects with breaks $<$ 25% are classified as BL Lacs.
$W_\lambda$=*nA*: Rest frame emission line equivalent width; objects with equivalent widths $<$ 5 A are classified as BL Lacs.

TABLE 5
H II REGION GALAXIES IN FBQS CANDIDATE LIST

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | $M_B$ (11) | $\log L_R$ (12) | $\log R^*$ (13) | z (14) | Notes (15) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 07 11 16.044 | +36 15 07.74 | * | 16.25 | 17.26 | 1.00 | 0.16 | 0.46 | 1.64 | 1.89 | -22.2 | 29.8 | 0.50 | 0.127 | |
| 07 15 33.880 | +33 08 09.97 | gO | 16.79 | 18.29 | 1.51 | 0.15 | 0.97 | 1.30 | 2.03 | -22.1 | 30.2 | 0.93 | 0.191 | |
| 07 16 53.832 | +40 53 37.47 | gE | 17.26 | 18.49 | 1.23 | 0.15 | 0.25 | 1.05 | 1.34 | -21.1 | 29.7 | 0.84 | 0.132 | |
| 07 20 23.480 | +34 35 32.47 | gE | 16.42 | 17.92 | 1.50 | 0.14 | 0.55 | 1.15 | 0.96 | -21.9 | 29.8 | 0.54 | 0.148 | |
| 07 23 16.871 | +33 59 57.46 | gE | 15.30 | 16.39 | 1.08 | 0.15 | 0.51 | 1.20 | 1.55 | -22.0 | 29.3 | 0.07 | 0.077 | |
| 07 24 06.763 | +37 55 31.39 | gE | 14.38 | 14.87 | 0.49 | 0.14 | 0.56 | 1.97 | 3.75 | -23.0 | 29.5 | -0.15 | 0.061 | |
| 07 59 40.372 | +31 50 30.40 | gE | 15.59 | 16.28 | 0.69 | 0.13 | 0.17 | 3.72 | 3.83 | -22.4 | 29.8 | 0.42 | 0.087 | I |
| 08 01 48.716 | +26 08 46.18 | gE | 12.97 | 14.09 | 1.12 | 0.10 | 0.58 | 1.48 | 2.97 | -22.0 | 28.7 | -0.55 | 0.027 | I |
| 08 10 26.038 | +23 41 56.51 | * | 17.55 | 18.04 | 0.49 | 0.13 | 0.61 | 1.39 | 0.90 | -21.5 | 29.7 | 0.68 | 0.133 | I |
| 08 12 46.525 | +26 21 42.05 | gE | 7.81 | 7.96 | 0.15 | 0.09 | 0.37 | 1.12 | 4.38 | -27.6 | 28.6 | -2.84 | 0.021 | I,B=14.2 |
| 08 14 50.826 | +25 38 41.42 | gE | 17.38 | 18.44 | 1.06 | 0.10 | 0.92 | 1.16 | 1.05 | -21.4 | 29.8 | 0.75 | 0.150 | |
| 08 19 11.384 | +40 28 44.63 | gE | 17.11 | 18.82 | 1.70 | 0.14 | 0.61 | 1.05 | 0.75 | -21.3 | 29.8 | 0.86 | 0.170 | |
| 08 19 23.895 | +26 18 15.34 | gE | 17.76 | 19.19 | 1.44 | 0.08 | 0.61 | 1.25 | 0.77 | -21.5 | 30.1 | 1.07 | 0.220 | |
| 08 20 45.414 | +42 21 20.40 | gE | 16.46 | 17.93 | 1.46 | 0.15 | 0.25 | 3.06 | 3.18 | -21.5 | 30.1 | 0.99 | 0.127 | |
| 08 23 02.176 | +36 45 59.03 | gE | 16.13 | 17.64 | 1.50 | 0.14 | 0.42 | 3.38 | 3.05 | -21.3 | 29.9 | 0.91 | 0.100 | I |
| 08 24 19.454 | +25 40 28.92 | gE | 13.21 | 14.27 | 1.06 | 0.09 | 0.02 | 1.07 | 1.93 | -21.9 | 28.5 | -0.67 | 0.028 | I |
| 08 25 39.718 | +29 11 33.83 | gE | 15.94 | 17.37 | 1.43 | 0.11 | 0.74 | 1.71 | 1.17 | -21.4 | 29.5 | 0.50 | 0.092 | I |
| 08 25 47.478 | +23 40 58.50 | gO | 17.54 | 18.59 | 1.05 | 0.12 | 0.08 | 1.80 | 1.93 | -21.2 | 30.0 | 1.03 | 0.148 | E(APS),O(APS),I |
| 08 29 24.212 | +37 04 31.64 | gE | 16.01 | 17.70 | 1.69 | 0.10 | 0.58 | 1.15 | 1.15 | -21.2 | 29.4 | 0.46 | 0.100 | I |
| 08 34 56.553 | +40 48 30.18 | * | 17.17 | 18.88 | 1.71 | 0.12 | 0.44 | 1.44 | 1.73 | -20.2 | 29.7 | 1.11 | 0.108 | |
| 08 35 59.713 | +24 35 26.87 | * | 16.01 | 16.83 | 0.81 | 0.09 | 0.06 | 1.72 | 2.47 | -21.4 | 29.5 | 0.45 | 0.072 | I |
| 08 36 02.634 | +24 23 31.71 | gE | 15.68 | 16.28 | 0.60 | 0.09 | 0.50 | 1.37 | 1.53 | -22.6 | 29.5 | 0.02 | 0.096 | |
| 08 37 52.477 | +40 47 29.46 | * | 17.80 | 19.27 | 1.46 | 0.11 | 0.18 | 1.23 | 1.10 | -21.6 | 30.2 | 1.09 | 0.240 | |
| 08 45 27.390 | +34 25 08.77 | gE | 10.42 | 10.66 | 0.24 | 0.08 | 0.94 | 1.84 | 3.98 | -25.3 | 28.8 | -1.80 | 0.026 | I,B=14.7 |
| 08 50 56.862 | +29 12 00.55 | gO | 12.84 | 13.68 | 0.84 | 0.10 | 0.45 | 1.43 | 3.32 | -22.3 | 28.7 | -0.67 | 0.026 | I,B=16.1 |
| 08 53 18.995 | +42 40 42.56 | gO | 11.91 | 12.87 | 0.96 | 0.08 | 0.85 | 1.19 | 4.00 | -24.5 | 29.3 | -0.92 | 0.048 | I |
| 08 55 27.072 | +37 39 22.83 | gO | 16.98 | 18.57 | 1.59 | 0.09 | 0.34 | 1.16 | 1.01 | -21.5 | 29.9 | 0.80 | 0.167 | |
| 08 55 33.219 | +31 12 42.29 | gO | 11.63 | 12.80 | 1.17 | 0.07 | 0.34 | 1.66 | 3.20 | -25.3 | 29.5 | -1.05 | 0.069 | I,B=15.6 |
| 08 55 40.642 | +25 43 56.30 | gO | 17.26 | 18.71 | 1.45 | 0.11 | 0.60 | 1.21 | 1.02 | -19.7 | 29.2 | 0.89 | 0.078 | |
| 08 59 40.716 | +40 45 58.50 | * | 17.63 | 18.28 | 0.66 | 0.06 | 0.24 | 1.13 | 0.81 | -21.0 | 29.5 | 0.69 | 0.117 | |
| 09 02 05.530 | +36 07 42.20 | gE | 17.42 | 18.58 | 1.16 | 0.08 | 0.17 | 1.05 | 0.87 | -22.0 | 30.0 | 0.76 | 0.210 | |
| 09 14 08.992 | +38 59 08.98 | gE | 16.62 | 17.52 | 0.90 | 0.05 | 0.25 | 3.86 | 3.91 | -22.5 | 30.4 | 0.91 | 0.162 | I |
| 09 17 49.545 | +36 49 11.16 | gO | 17.04 | 18.52 | 1.48 | 0.04 | 0.35 | 1.98 | 1.16 | -20.2 | 29.6 | 1.03 | 0.089 | I |
| 09 22 53.016 | +39 57 11.93 | gE | 17.43 | 18.10 | 0.66 | 0.03 | 0.36 | 3.90 | 5.01 | -23.2 | 31.0 | 1.23 | 0.288 | |
| 09 24 53.202 | +41 03 36.93 | gE | 8.09 | 9.77 | 1.68 | 0.05 | 0.88 | 4.63 | 6.40 | -24.9 | 28.5 | -1.94 | 0.014 | I,B=14.6 |
| 09 24 55.002 | +34 15 35.77 | gE | 16.69 | 17.55 | 0.87 | 0.05 | 0.10 | 1.83 | 1.33 | -20.5 | 29.3 | 0.61 | 0.068 | I |
| 09 26 08.227 | +34 53 43.56 | gO | 12.48 | 12.87 | 0.38 | 0.06 | 0.47 | 3.06 | 4.28 | -22.1 | 28.4 | -0.88 | 0.016 | I,B=16.5 |
| 09 26 25.308 | +35 27 55.42 | gE | 15.98 | 16.72 | 0.73 | 0.05 | 0.17 | 1.86 | 1.80 | -23.0 | 29.9 | 0.27 | 0.142 | |
| 09 27 46.008 | +23 55 59.51 | gO | 10.73 | 9.52 | -1.21 | 0.09 | 1.06 | 2.06 | 4.13 | -26.9 | 29.0 | -2.24 | 0.032 | I,B=15.4 |
| 09 30 11.081 | +34 39 51.98 | gO | 11.66 | 12.36 | 0.70 | 0.04 | 0.13 | 5.71 | 11.21 | -23.4 | 29.1 | -0.67 | 0.023 | I,B=15.5 |
| 09 37 37.670 | +23 14 26.73 | * | 10.43 | 8.87 | -1.56 | 0.09 | 1.05 | 1.50 | 5.10 | -27.0 | 28.9 | -2.41 | 0.025 | I,B=14.9 |
| 09 40 36.384 | +41 40 57.37 | gE | 17.13 | 18.93 | 1.80 | 0.03 | 0.50 | 1.17 | 0.75 | -20.4 | 29.6 | 0.96 | 0.121 | |
| 09 41 37.718 | +38 19 45.44 | * | 17.47 | 19.38 | 1.91 | 0.05 | 0.23 | 2.64 | 1.90 | -21.2 | 30.4 | 1.48 | 0.208 | I |
| 09 45 52.257 | +34 41 08.34 | * | 9.62 | 10.31 | 0.69 | 0.03 | 0.56 | 1.67 | 8.17 | -25.1 | 28.9 | -1.62 | 0.020 | I,B=14.9 |
| 09 46 44.582 | +29 13 35.64 | * | 16.49 | 17.84 | 1.35 | 0.05 | 0.16 | 1.21 | 0.93 | -21.9 | 29.7 | 0.53 | 0.140 | I |
| 09 51 43.767 | +36 16 10.72 | gE | 16.83 | 18.49 | 1.66 | 0.03 | 0.43 | 1.08 | 1.04 | -20.9 | 29.5 | 0.75 | 0.120 | |
| 09 56 42.683 | +36 20 29.04 | gE | 16.27 | 17.73 | 1.45 | 0.03 | 0.63 | 1.25 | 1.01 | -21.9 | 29.7 | 0.50 | 0.137 | |
| 09 58 13.006 | +34 25 33.07 | gE | 16.97 | 18.40 | 1.43 | 0.03 | 0.28 | 1.47 | 1.47 | -21.1 | 29.8 | 0.84 | 0.130 | I |
| 10 20 50.970 | +33 06 49.77 | * | 16.24 | 17.38 | 1.13 | 0.07 | 0.34 | 1.86 | 1.56 | -22.1 | 29.8 | 0.54 | 0.126 | O(APS),I |
| 10 22 50.589 | +29 11 02.80 | gE | 15.95 | 17.57 | 1.61 | 0.08 | 0.18 | 1.80 | 1.36 | -22.0 | 29.9 | 0.60 | 0.134 | |
| 10 22 56.211 | +23 21 50.79 | gE | 16.44 | 17.94 | 1.50 | 0.05 | 0.28 | 1.22 | 0.87 | -22.8 | 30.1 | 0.56 | 0.226 | I |
| 10 32 09.106 | +34 02 52.52 | gE | 15.69 | 16.36 | 0.66 | 0.05 | 0.63 | 1.25 | 1.92 | -22.5 | 29.6 | 0.15 | 0.097 | |
| 10 32 22.731 | +35 50 36.00 | * | 17.51 | 18.72 | 1.20 | 0.06 | 0.25 | 1.17 | 0.89 | -21.3 | 29.9 | 0.87 | 0.165 | |
| 10 35 35.900 | +32 32 54.18 | gE | 15.28 | 16.16 | 0.88 | 0.05 | 0.50 | 1.11 | 0.83 | -22.3 | 29.2 | -0.16 | 0.080 | I |
| 10 35 40.015 | +35 51 24.16 | * | 17.15 | 18.87 | 1.72 | 0.07 | 0.33 | 1.70 | 1.25 | -21.0 | 30.0 | 1.09 | 0.154 | |
| 10 36 16.829 | +31 57 32.28 | gE | 16.46 | 18.44 | 1.98 | 0.06 | 0.11 | 1.64 | 0.93 | -21.7 | 30.0 | 0.90 | 0.170 | I |
| 10 36 42.768 | +26 28 23.59 | gO | 17.36 | 19.01 | 1.65 | 0.06 | 0.64 | 1.67 | 1.48 | -19.7 | 29.5 | 1.15 | 0.090 | |
| 10 36 46.076 | +24 34 24.76 | gO | 16.06 | 17.67 | 1.61 | 0.06 | 0.79 | 1.01 | 1.40 | -22.5 | 30.0 | 0.52 | 0.170 | |
| 10 38 06.537 | +39 10 37.34 | * | 9.65 | 8.95 | -0.70 | 0.07 | 0.72 | 1.39 | 4.61 | -27.4 | 29.0 | -2.42 | 0.031 | I,B=14.9 |
| 10 40 44.498 | +39 04 28.00 | * | 10.12 | 9.46 | -0.66 | 0.04 | 0.32 | 1.49 | 10.23 | -26.8 | 29.3 | -1.87 | 0.030 | B=15 |
| 10 41 09.405 | +34 43 01.54 | gE | 11.22 | 12.35 | 1.13 | 0.05 | 0.47 | 1.84 | 4.83 | -25.4 | 29.6 | -1.05 | 0.059 | I,B=15.4 |
| 10 41 31.213 | +37 18 46.48 | gE | 10.55 | 10.57 | 0.02 | 0.04 | 0.52 | 4.34 | 4.53 | -25.2 | 28.8 | -1.78 | 0.024 | I,B=13.9 |
| 10 44 13.990 | +22 43 33.56 | gE | 9.52 | 11.15 | 1.63 | 0.08 | 0.97 | 1.09 | 9.30 | -24.1 | 28.9 | -1.23 | 0.019 | I,B=15.2 |
| 10 48 44.177 | +26 03 12.28 | gE | 11.67 | 11.15 | -0.52 | 0.09 | 0.13 | 7.49 | 10.67 | -24.7 | 29.2 | -1.17 | 0.025 | I,B=15.0 |
| 10 51 37.003 | +42 03 13.46 | gE | 17.48 | 19.03 | 1.55 | 0.04 | 0.24 | 1.65 | 1.38 | -20.2 | 29.7 | 1.15 | 0.115 | I |
| 11 02 14.046 | +38 02 34.90 | gE | 15.95 | 17.13 | 1.18 | 0.04 | 0.42 | 9.53 | 9.61 | -22.8 | 30.7 | 1.14 | 0.158 | I |
| 11 03 40.317 | +37 55 45.58 | * | 12.00 | 12.41 | 0.41 | 0.04 | 0.43 | 2.88 | 4.58 | -24.7 | 29.3 | -1.04 | 0.043 | I,B=15.6 |
| 11 04 14.865 | +34 24 19.76 | gE | 16.33 | 17.30 | 0.97 | 0.06 | 0.98 | 1.31 | 1.93 | -22.0 | 29.8 | 0.52 | 0.120 | |
| 11 06 01.967 | +40 06 42.29 | gE | 17.70 | 18.93 | 1.23 | 0.03 | 0.53 | 1.10 | 4.45 | -19.7 | 29.9 | 1.55 | 0.088 | |
| 11 10 02.208 | +31 30 01.88 | * | 16.84 | 17.23 | 0.39 | 0.06 | 0.54 | 1.06 | 1.44 | -22.1 | 29.7 | 0.37 | 0.120 | I |
| 11 21 24.131 | +29 10 46.89 | * | 17.73 | 19.05 | 1.31 | 0.04 | 0.72 | 1.51 | 1.11 | -21.2 | 30.0 | 1.11 | 0.176 | |

TABLE 5—*Continued*

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | $M_B$ (11) | $\log L_R$ (12) | $\log R^*$ (13) | z (14) | Notes (15) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 23 48.991 | +37 05 11.45 | gO | 10.06 | 10.93 | 0.88 | 0.07 | 0.37 | 1.40 | 1.12 | -25.8 | 28.6 | -2.14 | 0.036 | I,B=15.6 |
| 11 29 30.184 | +42 09 04.30 | gE | 17.46 | 19.16 | 1.71 | 0.04 | 0.92 | 1.11 | 1.23 | -21.1 | 30.0 | 1.06 | 0.180 | |
| 11 32 43.759 | +34 05 24.36 | gE | 17.09 | 18.41 | 1.32 | 0.07 | 0.35 | 1.56 | 1.61 | -22.6 | 30.4 | 0.86 | 0.250 | |
| 11 32 43.805 | +41 56 09.53 | gE | 16.27 | 18.19 | 1.92 | 0.07 | 1.10 | 1.07 | 0.94 | -19.8 | 29.0 | 0.63 | 0.066 | I |
| 11 41 37.986 | +37 59 32.05 | * | 10.19 | 11.40 | 1.22 | 0.06 | 0.82 | 1.70 | 5.90 | -24.2 | 28.8 | -1.33 | 0.022 | B=14.9 |
| 11 53 16.934 | +23 27 52.15 | gO | 7.25 | 8.77 | 1.53 | 0.09 | 0.58 | 1.49 | 3.42 | -27.1 | 28.7 | -2.62 | 0.025 | I,B=15.0 |
| 11 57 41.475 | +32 13 16.54 | gO | 16.11 | 16.91 | 0.80 | 0.06 | 0.20 | 2.90 | 3.18 | -23.1 | 30.3 | 0.58 | 0.160 | |
| 12 02 00.808 | +32 33 19.60 | * | 17.18 | 18.35 | 1.17 | 0.05 | 0.54 | 2.97 | 2.60 | -21.7 | 30.3 | 1.12 | 0.166 | I |
| 12 13 29.455 | +32 23 31.91 | gO | 16.89 | 18.35 | 1.46 | 0.04 | 0.66 | 1.37 | 0.88 | -22.0 | 30.0 | 0.78 | 0.190 | |
| 12 13 51.473 | +36 22 31.08 | * | 16.56 | 17.20 | 0.64 | 0.06 | 0.16 | 1.28 | 0.78 | -21.4 | 29.3 | 0.31 | 0.087 | I |
| 12 20 59.798 | +24 50 56.00 | gE | 14.94 | 15.80 | 0.85 | 0.06 | 0.80 | 1.56 | 1.68 | -22.5 | 29.3 | -0.13 | 0.076 | |
| 12 27 24.582 | +25 17 14.41 | gE | 14.76 | 15.50 | 0.74 | 0.05 | 0.54 | 1.13 | 1.36 | -22.4 | 29.1 | -0.34 | 0.063 | I |
| 12 33 30.953 | +31 55 49.28 | * | 17.31 | 18.66 | 1.35 | 0.04 | 0.09 | 1.56 | 1.48 | -21.3 | 30.0 | 0.97 | 0.160 | I |
| 12 35 13.183 | +37 48 38.67 | gE | 17.45 | 19.38 | 1.93 | 0.04 | 0.60 | 1.20 | 0.71 | -21.3 | 30.1 | 1.13 | 0.213 | I |
| 12 36 50.793 | +38 24 02.97 | gE | 17.79 | 18.85 | 1.06 | 0.03 | 0.24 | 1.16 | 0.84 | -20.5 | 29.6 | 0.92 | 0.118 | |
| 12 47 07.730 | +37 05 36.89 | gO | 17.75 | 18.41 | 0.66 | 0.05 | 0.75 | 2.33 | 2.17 | -21.5 | 30.1 | 1.04 | 0.158 | I |
| 12 47 08.484 | +27 47 35.26 | gO | 9.87 | 10.48 | 0.62 | 0.03 | 0.94 | 1.37 | 5.93 | -25.4 | 28.9 | -1.69 | 0.025 | I,B=16 |
| 12 47 50.275 | +27 22 10.03 | gE | 15.16 | 16.11 | 0.95 | 0.04 | 0.06 | 3.05 | 3.45 | -22.6 | 29.8 | 0.31 | 0.092 | I |
| 12 48 57.776 | +34 52 07.85 | gO | 11.38 | 13.12 | 1.74 | 0.04 | 0.34 | 1.55 | 1.86 | -22.6 | 28.3 | -1.14 | 0.023 | I,B=15.7 |
| 12 53 54.492 | +26 24 36.62 | gO | 15.66 | 16.56 | 0.90 | 0.03 | 0.90 | 1.47 | 1.22 | -20.6 | 28.8 | 0.13 | 0.045 | I |
| 13 03 30.661 | +32 04 55.65 | gO | 14.68 | 16.16 | 1.48 | 0.04 | 0.20 | 3.53 | 3.20 | -22.2 | 29.7 | 0.34 | 0.077 | I |
| 13 06 13.146 | +23 58 53.98 | * | 17.14 | 18.74 | 1.60 | 0.06 | 0.24 | 2.46 | 2.59 | -21.4 | 30.2 | 1.22 | 0.169 | |
| 13 10 18.728 | +22 43 32.58 | gE | 17.65 | 18.95 | 1.31 | 0.04 | 0.72 | 1.14 | 1.52 | -21.4 | 30.1 | 1.07 | 0.188 | |
| 13 15 03.527 | +24 37 07.92 | gO | 8.48 | 9.70 | 1.22 | 0.04 | 0.15 | 31.21 | 32.33 | -24.8 | 29.1 | -1.27 | 0.013 | I,B=15.4 |
| 13 20 48.097 | +36 45 48.67 | gE | 17.02 | 18.01 | 1.00 | 0.04 | 0.64 | 1.07 | 1.03 | -21.1 | 29.5 | 0.56 | 0.110 | |
| 13 21 55.794 | +26 09 57.64 | gE | 16.43 | 17.10 | 0.67 | 0.06 | 0.56 | 1.04 | 1.69 | -22.6 | 29.9 | 0.38 | 0.140 | |
| 13 22 54.945 | +42 54 36.32 | * | 15.28 | 16.93 | 1.65 | 0.04 | 0.26 | 1.34 | 1.76 | -21.4 | 29.4 | 0.35 | 0.075 | I |
| 13 23 06.672 | +34 00 26.11 | gO | 16.91 | 17.52 | 0.61 | 0.03 | 0.60 | 1.19 | 0.94 | -22.3 | 29.8 | 0.40 | 0.150 | |
| 13 26 46.626 | +25 33 54.13 | gE | 17.36 | 18.37 | 1.01 | 0.03 | 0.39 | 1.09 | 0.91 | -21.3 | 29.7 | 0.70 | 0.137 | |
| 13 33 59.731 | +27 44 02.26 | gE | 17.53 | 19.10 | 1.57 | 0.03 | 0.65 | 1.11 | 1.24 | -21.3 | 30.0 | 1.04 | 0.190 | |
| 13 41 07.944 | +26 30 48.10 | gO | 17.74 | 18.64 | 0.90 | 0.03 | 0.79 | 1.56 | 0.96 | -19.5 | 29.2 | 0.98 | 0.070 | ?,o |
| 13 42 35.906 | +39 45 33.23 | gE | 15.50 | 16.67 | 1.17 | 0.02 | 0.08 | 1.32 | 1.39 | -22.3 | 29.5 | 0.14 | 0.100 | |
| 13 45 45.954 | +23 42 12.42 | gE | 14.98 | 16.07 | 1.10 | 0.04 | 0.38 | 1.82 | 2.41 | -22.5 | 29.6 | 0.14 | 0.083 | I |
| 13 49 19.256 | +34 01 42.08 | * | 15.85 | 17.50 | 1.65 | 0.06 | 0.79 | 1.35 | 1.29 | -21.4 | 29.5 | 0.45 | 0.096 | I |
| 13 54 01.081 | +33 32 08.79 | * | 16.04 | 17.32 | 1.27 | 0.06 | 0.33 | 1.09 | 1.13 | -21.0 | 29.2 | 0.31 | 0.077 | |
| 13 54 50.750 | +23 42 09.67 | gE | 16.80 | 18.38 | 1.58 | 0.05 | 0.62 | 1.38 | 2.21 | -19.5 | 29.3 | 1.03 | 0.063 | I |
| 13 59 28.825 | +33 19 16.04 | * | 16.60 | 17.87 | 1.27 | 0.04 | 0.44 | 2.12 | 2.34 | -21.8 | 30.0 | 0.83 | 0.140 | I |
| 14 01 28.976 | +35 14 30.98 | gE | 17.51 | 19.19 | 1.68 | 0.03 | 1.04 | 1.50 | 1.58 | -21.3 | 30.2 | 1.18 | 0.200 | |
| 14 03 37.679 | +37 03 55.44 | gE | 17.46 | 19.11 | 1.65 | 0.02 | 0.28 | 2.05 | 1.96 | -21.5 | 30.3 | 1.26 | 0.210 | I |
| 14 09 35.441 | +26 06 21.64 | gE | 15.98 | 16.37 | 0.39 | 0.04 | 0.88 | 1.43 | 1.25 | -21.8 | 29.2 | 0.03 | 0.069 | |
| 14 10 01.541 | +38 16 33.10 | gE | 17.34 | 18.30 | 0.96 | 0.02 | 0.45 | 1.31 | 0.73 | -21.3 | 29.7 | 0.75 | 0.137 | I |
| 14 15 20.502 | +34 31 19.04 | gE | 13.46 | 14.36 | 0.90 | 0.04 | 0.16 | 5.24 | 5.90 | -24.2 | 30.0 | -0.16 | 0.083 | I,B=16.5 |
| 14 16 22.128 | +23 09 44.44 | gO | 17.53 | 18.62 | 1.10 | 0.07 | 0.17 | 1.23 | 0.82 | -21.1 | 29.7 | 0.85 | 0.140 | |
| 14 17 58.755 | +26 24 47.40 | * | 8.43 | 7.71 | -0.72 | 0.06 | 0.96 | 1.15 | 6.13 | -26.9 | 28.4 | -2.79 | 0.014 | I,B=14.1 |
| 14 19 16.528 | +26 17 55.76 | * | 8.68 | 10.52 | 1.84 | 0.05 | 1.04 | 3.17 | 9.66 | -26.2 | 29.5 | -1.47 | 0.036 | I,B=14.7 |
| 14 19 21.796 | +26 18 17.85 | gO | 10.52 | 12.07 | 1.55 | 0.05 | 0.84 | 1.07 | 4.33 | -24.6 | 29.1 | -1.20 | 0.036 | B=15.7 |
| 14 28 39.563 | +29 34 28.90 | gO | 17.65 | 18.79 | 1.14 | 0.04 | 0.46 | 2.42 | 1.99 | -21.1 | 30.1 | 1.21 | 0.153 | |
| 14 29 42.628 | +31 02 01.59 | gO | 17.79 | 19.25 | 1.46 | 0.04 | 0.21 | 1.06 | 0.96 | -21.1 | 29.9 | 1.03 | 0.190 | |
| 14 30 10.954 | +23 01 34.99 | gO | 9.03 | 10.92 | 1.89 | 0.08 | 0.58 | 3.89 | 4.19 | -24.1 | 28.4 | -1.67 | 0.017 | I,B=15.3 |
| 14 30 20.760 | +25 48 09.51 | * | 17.49 | 18.67 | 1.18 | 0.07 | 0.77 | 1.18 | 1.59 | -22.4 | 30.4 | 0.96 | 0.260 | |
| 14 36 32.072 | +41 41 08.03 | * | 8.51 | 9.59 | 1.08 | 0.04 | 0.41 | 1.94 | 9.18 | -25.6 | 28.8 | -1.86 | 0.018 | I,B=14.7 |
| 14 38 11.056 | +40 04 33.32 | gE | 17.07 | 18.81 | 1.73 | 0.04 | 0.08 | 1.91 | 1.78 | -22.4 | 30.5 | 1.09 | 0.270 | |
| 14 42 40.807 | +26 23 32.84 | gO | 15.14 | 16.18 | 1.04 | 0.06 | 0.22 | 3.17 | 3.40 | -22.9 | 30.0 | 0.33 | 0.108 | X |
| 14 48 28.756 | +34 34 38.96 | * | 17.44 | 19.00 | 1.56 | 0.07 | 0.92 | 2.61 | 2.79 | -21.6 | 30.4 | 1.35 | 0.210 | I |
| 14 48 54.519 | +35 58 24.03 | gE | 16.58 | 18.44 | 1.86 | 0.04 | 0.45 | 1.43 | 1.11 | -20.5 | 29.5 | 0.85 | 0.100 | I |
| 14 58 38.605 | +38 27 28.54 | gE | 17.22 | 18.90 | 1.67 | 0.04 | 0.65 | 1.71 | 1.99 | -20.8 | 29.9 | 1.17 | 0.140 | |
| 14 59 24.936 | +29 00 37.15 | gE | 17.04 | 18.32 | 1.28 | 0.05 | 1.07 | 1.33 | 1.92 | -21.5 | 30.0 | 0.92 | 0.151 | |
| 14 59 27.507 | +25 35 02.33 | * | 8.39 | 9.13 | 0.74 | 0.11 | 0.63 | 1.07 | 7.41 | -27.4 | 29.3 | -2.14 | 0.033 | I,B=15.3 |
| 14 59 32.851 | +26 32 59.78 | gO | 15.77 | 16.55 | 0.78 | 0.11 | 0.62 | 1.31 | 1.93 | -22.6 | 29.7 | 0.22 | 0.110 | |
| 15 02 35.768 | +35 43 34.60 | * | 16.84 | 18.08 | 1.23 | 0.04 | 1.03 | 1.02 | 1.38 | -21.3 | 29.7 | 0.69 | 0.120 | |
| 15 02 50.406 | +24 19 29.83 | gO | 17.06 | 18.57 | 1.51 | 0.14 | 0.59 | 1.74 | 2.37 | -20.6 | 29.8 | 1.12 | 0.110 | I |
| 15 03 54.340 | +31 33 20.74 | gO | 15.75 | 16.89 | 1.14 | 0.05 | 0.67 | 1.04 | 1.54 | -21.5 | 29.3 | 0.27 | 0.079 | I |
| 15 04 35.875 | +34 43 37.10 | gO | 16.86 | 17.29 | 0.43 | 0.04 | 0.90 | 1.10 | 2.41 | -21.6 | 29.7 | 0.62 | 0.100 | I |
| 15 05 55.221 | +35 24 41.64 | gO | 17.24 | 18.35 | 1.11 | 0.04 | 0.80 | 1.08 | 0.87 | -20.4 | 29.3 | 0.70 | 0.092 | |
| 15 22 11.929 | +33 13 54.24 | gO | 16.49 | 17.84 | 1.35 | 0.06 | 0.45 | 2.57 | 2.95 | -20.7 | 29.7 | 0.93 | 0.082 | |
| 15 26 10.574 | +39 43 32.85 | gE | 14.98 | 16.08 | 1.10 | 0.06 | 0.05 | 1.19 | 0.99 | -22.4 | 29.2 | -0.17 | 0.081 | I |
| 15 28 01.515 | +28 59 57.72 | gE | 14.59 | 15.74 | 1.15 | 0.06 | 1.00 | 1.13 | 1.95 | -22.4 | 29.3 | -0.09 | 0.070 | I |
| 15 28 40.942 | +34 42 02.08 | * | 16.56 | 17.75 | 1.19 | 0.07 | 0.54 | 1.50 | 1.09 | -22.2 | 29.9 | 0.59 | 0.156 | I |
| 15 33 41.848 | +26 08 23.95 | gE | 10.09 | 10.73 | 0.64 | 0.15 | 0.20 | 1.79 | 4.29 | -25.8 | 29.1 | -1.74 | 0.034 | I,B=15.3 |
| 15 37 55.817 | +23 25 55.36 | gE | 16.16 | 17.50 | 1.34 | 0.13 | 0.44 | 1.35 | 1.15 | -21.4 | 29.5 | 0.46 | 0.099 | |
| 15 38 41.207 | +29 27 32.42 | gE | 15.01 | 16.17 | 1.16 | 0.06 | 0.20 | 1.47 | 1.43 | -21.6 | 29.1 | -0.03 | 0.060 | I |

TABLE 5—*Continued*

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | $M_B$ (11) | log$L_R$ (12) | log$R^*$ (13) | z (14) | Notes (15) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 41 39.089 | +22 32 24.84 | gE | 17.67 | 19.28 | 1.61 | 0.13 | 0.09 | 1.24 | 1.48 | -20.2 | 29.8 | 1.20 | 0.130 | |
| 15 42 12.687 | +36 15 15.15 | * | 17.11 | 19.07 | 1.96 | 0.07 | 0.58 | 1.63 | 1.97 | -21.8 | 30.4 | 1.22 | 0.240 | I |
| 15 43 26.407 | +32 28 59.29 | gE | 17.13 | 18.39 | 1.26 | 0.08 | 0.59 | 1.84 | 1.67 | -22.1 | 30.2 | 0.92 | 0.200 | I |
| 15 45 43.143 | +22 52 42.47 | gE | 10.11 | 10.75 | 0.63 | 0.15 | 0.90 | 1.19 | 3.10 | -26.2 | 29.1 | -1.87 | 0.041 | I,B=15.5 |
| 15 46 07.495 | +28 24 57.02 | gE | 12.74 | 13.61 | 0.87 | 0.08 | 0.35 | 1.25 | 2.99 | -23.0 | 28.9 | -0.74 | 0.034 | I,B=15.5 |
| 15 46 36.805 | +38 56 28.82 | gE | 15.71 | 16.95 | 1.24 | 0.04 | 0.28 | 1.56 | 1.63 | -21.1 | 29.2 | 0.32 | 0.068 | |
| 15 46 52.916 | +26 34 48.07 | gE | 16.85 | 18.31 | 1.46 | 0.12 | 0.46 | 2.47 | 2.63 | -19.9 | 29.5 | 1.07 | 0.072 | I |
| 15 47 36.342 | +26 03 49.45 | gE | 8.51 | 9.58 | 1.07 | 0.16 | 0.58 | 2.51 | 5.42 | -26.8 | 29.1 | -2.10 | 0.031 | I,B=14.9 |
| 15 48 23.287 | +26 37 28.48 | gE | 15.51 | 16.46 | 0.95 | 0.11 | 0.43 | 1.49 | 1.75 | -22.5 | 29.6 | 0.15 | 0.100 | I |
| 15 55 35.832 | +31 52 57.92 | * | 17.70 | 19.35 | 1.65 | 0.07 | 0.84 | 5.84 | 6.45 | -21.2 | 30.8 | 1.85 | 0.210 | |
| 15 55 36.222 | +31 25 02.88 | * | 16.29 | 17.35 | 1.06 | 0.07 | 0.32 | 3.49 | 3.59 | -22.5 | 30.3 | 0.81 | 0.150 | I |
| 15 59 30.509 | +26 55 35.00 | gE | 16.70 | 18.37 | 1.67 | 0.12 | 0.45 | 1.19 | 1.43 | -19.6 | 29.1 | 0.83 | 0.064 | I |
| 16 05 08.872 | +32 39 22.43 | gE | 16.00 | 17.83 | 1.83 | 0.10 | 1.08 | 1.07 | 1.03 | -20.9 | 29.3 | 0.49 | 0.091 | |
| 16 05 45.860 | +41 20 40.77 | gE | 9.24 | 9.30 | 0.06 | 0.03 | 0.71 | 2.38 | 4.36 | -24.6 | 28.0 | -2.30 | 0.006 | I,B=13.9 |
| 16 08 01.121 | +28 11 50.82 | * | 16.83 | 18.16 | 1.33 | 0.10 | 1.07 | 1.26 | 1.22 | -21.3 | 29.7 | 0.68 | 0.125 | |
| 16 09 57.973 | +31 46 05.07 | gO | 16.49 | 18.25 | 1.76 | 0.09 | 0.36 | 1.02 | 1.28 | -19.5 | 29.0 | 0.74 | 0.059 | I |
| 16 12 24.728 | +38 39 21.83 | gE | 16.34 | 17.14 | 0.80 | 0.04 | 0.51 | 1.35 | 0.83 | -22.0 | 29.6 | 0.31 | 0.110 | I |
| 16 12 59.828 | +42 19 40.02 | gE | 17.06 | 18.16 | 1.09 | 0.04 | 0.53 | 3.44 | 3.60 | -22.7 | 30.6 | 1.12 | 0.230 | I |
| 16 14 07.633 | +35 20 57.74 | gO | 17.78 | 19.15 | 1.37 | 0.05 | 0.05 | 4.37 | 4.07 | -20.3 | 30.2 | 1.62 | 0.125 | I |
| 16 14 23.557 | +40 16 28.55 | gO | 17.33 | 18.38 | 1.04 | 0.04 | 0.23 | 1.07 | 1.27 | -20.8 | 29.5 | 0.77 | 0.110 | I |
| 16 17 56.888 | +22 56 44.23 | gO | 7.89 | 9.37 | 1.48 | 0.27 | 0.71 | 10.72 | 11.39 | -25.4 | 28.8 | -1.85 | 0.015 | I,B=15.0 |
| 16 19 41.046 | +27 49 40.52 | gO | 17.10 | 18.47 | 1.37 | 0.17 | 0.69 | 1.73 | 1.69 | -20.9 | 29.8 | 0.95 | 0.120 | I |
| 16 19 41.951 | +28 27 30.40 | gO | 16.03 | 16.82 | 0.80 | 0.15 | 0.62 | 1.29 | 0.74 | -22.6 | 29.7 | 0.16 | 0.126 | |
| 16 21 04.775 | +36 54 46.26 | gE | 17.47 | 19.42 | 1.95 | 0.04 | 0.36 | 1.15 | 0.74 | -21.6 | 30.2 | 1.12 | 0.249 | |
| 16 21 25.089 | +29 31 49.83 | gO | 16.82 | 18.33 | 1.51 | 0.12 | 0.63 | 1.30 | 0.84 | -22.1 | 30.0 | 0.75 | 0.192 | |
| 16 21 29.761 | +34 07 46.95 | gE | 16.18 | 17.94 | 1.77 | 0.05 | 0.15 | 11.98 | 12.55 | -21.9 | 30.8 | 1.59 | 0.147 | |
| 16 23 23.988 | +35 43 49.09 | gE | 16.90 | 18.00 | 1.10 | 0.04 | 0.55 | 1.15 | 1.09 | -22.0 | 29.8 | 0.57 | 0.164 | |
| 16 23 46.771 | +31 00 27.44 | * | 17.03 | 18.54 | 1.51 | 0.06 | 1.06 | 1.08 | 1.08 | -20.9 | 29.6 | 0.77 | 0.125 | I |
| 16 25 14.978 | +34 06 24.76 | gE | 17.32 | 18.97 | 1.66 | 0.05 | 0.77 | 1.49 | 0.91 | -21.3 | 30.0 | 1.07 | 0.180 | I |
| 16 28 31.673 | +35 31 20.27 | gE | 16.55 | 17.96 | 1.41 | 0.05 | 0.86 | 1.23 | 3.46 | -20.9 | 29.9 | 1.05 | 0.097 | I |
| 16 32 16.035 | +24 58 32.20 | * | 17.60 | 19.33 | 1.73 | 0.11 | 0.29 | 1.20 | 1.49 | -20.4 | 29.8 | 1.22 | 0.140 | |
| 16 35 46.935 | +28 50 04.72 | gO | 17.37 | 18.24 | 0.87 | 0.08 | 0.48 | 3.62 | 4.39 | -21.6 | 30.3 | 1.25 | 0.147 | |
| 16 37 56.106 | +27 54 02.64 | gO | 15.05 | 15.47 | 0.42 | 0.16 | 0.48 | 2.15 | 1.72 | -22.3 | 29.2 | -0.15 | 0.058 | I |
| 16 39 31.758 | +29 27 44.60 | gO | 16.51 | 17.78 | 1.27 | 0.09 | 0.45 | 1.14 | 0.96 | -22.4 | 29.9 | 0.48 | 0.174 | |
| 16 47 05.980 | +29 39 18.14 | gO | 14.53 | 15.40 | 0.87 | 0.12 | 0.23 | 2.13 | 2.66 | -22.1 | 29.2 | -0.08 | 0.053 | I |
| 16 49 34.541 | +37 51 04.29 | * | 16.75 | 18.12 | 1.37 | 0.07 | 0.35 | 1.35 | 1.41 | -21.9 | 29.9 | 0.71 | 0.164 | I |
| 16 54 23.486 | +33 18 03.12 | * | 17.23 | 17.74 | 0.51 | 0.07 | 0.26 | 3.59 | 3.64 | -21.9 | 30.2 | 0.97 | 0.140 | I |
| 16 54 35.303 | +26 38 42.63 | * | 17.65 | 18.51 | 0.86 | 0.21 | 0.41 | 1.22 | 0.87 | -20.9 | 29.6 | 0.81 | 0.121 | |
| 16 57 18.761 | +24 28 44.15 | * | 17.73 | 18.52 | 0.79 | 0.14 | 0.41 | 2.69 | 3.20 | -22.1 | 30.5 | 1.21 | 0.210 | I |
| 17 06 30.780 | +23 01 30.69 | gO | 17.54 | 18.87 | 1.33 | 0.15 | 0.36 | 1.01 | 1.57 | -20.8 | 29.8 | 1.06 | 0.137 | |
| 17 12 40.358 | +33 16 47.00 | gE | 12.80 | 13.96 | 1.16 | 0.11 | 0.42 | 4.32 | 8.23 | -24.0 | 29.9 | -0.17 | 0.063 | I |
| 17 13 10.239 | +26 27 15.13 | gE | 12.97 | 13.98 | 1.01 | 0.11 | 0.54 | 1.31 | 1.97 | -23.3 | 29.0 | -0.78 | 0.048 | I |
| 17 17 56.257 | +38 00 09.10 | gE | 17.53 | 19.10 | 1.57 | 0.13 | 0.16 | 1.19 | 1.51 | -21.3 | 30.1 | 1.12 | 0.190 | |
| 17 19 39.431 | +39 15 37.99 | gO | 17.24 | 17.52 | 0.28 | 0.11 | 1.11 | 1.04 | 1.75 | -21.2 | 29.5 | 0.58 | 0.090 | |
| 17 22 41.861 | +36 27 24.95 | gO | 17.44 | 18.01 | 0.58 | 0.13 | 0.64 | 1.62 | 1.30 | -22.4 | 30.2 | 0.72 | 0.197 | |
| 17 24 11.211 | +33 52 06.05 | gO | 17.38 | 18.95 | 1.57 | 0.12 | 0.57 | 1.23 | 0.65 | -20.6 | 29.7 | 0.99 | 0.130 | |
| 17 24 38.106 | +31 59 42.75 | * | 16.65 | 17.93 | 1.28 | 0.12 | 1.03 | 1.01 | 1.89 | -21.0 | 29.6 | 0.77 | 0.101 | E(APS) |
| 17 36 04.538 | +40 17 17.95 | gE | 17.72 | 19.05 | 1.33 | 0.10 | 0.76 | 1.37 | 1.94 | -21.9 | 30.4 | 1.20 | 0.240 | |

NOTE.—Table columns are same as Table 2.

TABLE 6
PASSIVE GALAXIES IN FBQS CANDIDATE LIST

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | $M_B$ (11) | $\log L_R$ (12) | $\log R^*$ (13) | z (14) | Notes (15) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 07 15 12.160 | +34 16 58.70 | gO | 17.33 | 19.21 | 1.88 | 0.13 | 0.66 | 1.16 | 1.17 | -21.2 | 30.0 | 1.06 | 0.191 | |
| 07 28 53.441 | +33 49 08.75 | gO | 7.56 | 7.74 | 0.18 | 0.16 | 0.54 | 37.95 | 64.61 | -26.9 | 29.5 | -1.75 | 0.014 | o,I,B=14.7 |
| 07 48 19.128 | +34 53 26.27 | gO | 17.68 | 19.40 | 1.72 | 0.16 | 0.32 | 1.18 | 1.48 | -20.1 | 29.8 | 1.25 | 0.130 | |
| 07 59 38.825 | +24 58 56.57 | gO | 7.62 | 8.04 | 0.42 | 0.11 | 0.13 | 8.32 | 14.61 | -26.9 | 28.9 | -2.28 | 0.016 | o,I,B=14.3 |
| 08 32 11.304 | +22 33 38.03 | gO | 9.33 | 9.52 | 0.20 | 0.09 | 0.62 | 2.96 | 3.11 | -25.4 | 28.3 | -2.36 | 0.016 | I,B=13.1 |
| 08 48 59.624 | +41 00 11.37 | gO | 7.93 | 9.49 | 1.56 | 0.08 | 0.91 | 1.84 | 2.49 | -26.3 | 28.5 | -2.47 | 0.024 | B=14.9 |
| 08 50 11.819 | +35 04 35.56 | gO | 8.81 | 10.11 | 1.31 | 0.10 | 1.10 | 2.71 | 3.39 | -23.8 | 27.9 | -2.08 | 0.008 | o,I,B=13.9 |
| 09 16 51.333 | +29 41 24.45 | * | 17.75 | 19.39 | 1.64 | 0.06 | 0.29 | 1.89 | 1.20 | ··· | ··· | 1.38 | ··· | |
| 09 22 07.845 | +28 37 07.89 | gO | 17.45 | 19.16 | 1.71 | 0.06 | 0.23 | 1.71 | 2.38 | -22.2 | 30.7 | 1.33 | 0.294 | |
| 09 27 34.763 | +32 47 13.55 | gE | 17.71 | 18.72 | 1.01 | 0.05 | 0.41 | 1.54 | 2.20 | -22.0 | 30.4 | 1.13 | 0.221 | o,I |
| 10 12 58.369 | +39 32 38.98 | gE | 16.30 | 17.77 | 1.47 | 0.04 | 0.35 | 20.97 | 20.65 | -22.4 | 31.1 | 1.74 | 0.171 | X |
| 10 21 00.497 | +42 59 07.54 | gO | 8.69 | 9.17 | 0.48 | 0.05 | 0.31 | 1.65 | 2.13 | -26.5 | 28.4 | -2.66 | 0.023 | o,B=14.2 |
| 10 45 24.310 | +29 13 08.69 | gO | 10.20 | 11.56 | 1.36 | 0.09 | 0.92 | 1.20 | 5.00 | -24.0 | 28.7 | -1.34 | 0.021 | o,I,B=14.9 |
| 11 00 21.010 | +42 10 53.09 | * | 17.40 | 19.06 | 1.66 | 0.03 | 0.27 | 11.95 | 12.95 | -22.5 | 31.5 | 2.02 | 0.323 | |
| 11 15 24.467 | +41 53 46.01 | gE | 17.64 | 18.94 | 1.30 | 0.04 | 0.12 | 1.55 | 1.31 | -22.5 | 30.5 | 1.05 | 0.306 | |
| 11 18 06.635 | +23 23 50.76 | gO | 9.81 | 10.35 | 0.54 | 0.05 | 0.85 | 2.08 | 2.07 | -30.4 | 30.4 | -2.24 | 0.220 | o,B=13.8 |
| 11 26 17.267 | +35 20 25.08 | gO | 11.01 | 11.69 | 0.68 | 0.06 | 0.48 | 4.83 | 4.92 | -24.9 | 29.1 | -1.29 | 0.034 | B=15.3 |
| 11 26 34.896 | +34 29 21.47 | gE | 15.83 | 17.21 | 1.38 | 0.07 | 0.85 | 1.04 | 0.90 | -22.4 | 29.7 | 0.22 | 0.138 | |
| 11 37 31.056 | +31 21 44.94 | gE | 9.33 | 8.63 | -0.70 | 0.06 | 1.01 | 1.06 | 13.57 | -28.5 | 29.8 | -2.08 | 0.043 | B=14.6 |
| 11 42 36.867 | +38 00 14.52 | gO | 16.21 | 17.99 | 1.77 | 0.06 | 0.69 | 1.05 | 0.83 | -21.5 | 29.6 | 0.53 | 0.130 | |
| 11 47 01.842 | +32 03 51.49 | gO | 15.53 | 17.41 | 1.87 | 0.05 | 0.28 | 2.10 | 1.98 | -22.2 | 29.9 | 0.60 | 0.133 | |
| 11 49 57.179 | +37 40 39.09 | gO | 15.22 | 16.22 | 1.00 | 0.06 | 1.17 | 1.28 | 1.48 | -23.6 | 29.9 | -0.03 | 0.148 | |
| 11 57 36.856 | +32 16 38.98 | gO | 9.73 | 10.17 | 0.45 | 0.06 | 0.85 | 12.50 | 49.45 | -23.7 | 29.1 | -0.90 | 0.010 | o,B=13.3 |
| 11 57 59.294 | +23 12 06.89 | gO | 6.90 | 8.47 | 1.56 | 0.07 | 0.93 | 2.93 | 3.05 | -27.2 | 28.6 | -2.79 | 0.023 | B=15.0 |
| 12 10 49.612 | +39 28 22.24 | gO | 8.52 | 9.24 | 0.72 | 0.07 | 1.12 | 2.46 | 2.93 | -26.4 | 28.5 | -2.50 | 0.022 | o,B=14.0 |
| 12 21 39.193 | +40 50 56.15 | gO | 8.55 | 9.32 | 0.77 | 0.06 | 0.57 | 1.20 | 0.76 | -26.4 | 28.2 | -2.85 | 0.023 | o,I,B=13.8 |
| 12 51 51.516 | +38 05 39.41 | gO | 16.88 | 18.59 | 1.71 | 0.05 | 0.21 | 1.13 | 1.14 | -21.3 | 29.8 | 0.81 | 0.150 | |
| 12 57 35.823 | +27 29 36.50 | gO | 10.35 | 11.69 | 1.34 | 0.03 | 0.82 | 1.13 | 0.96 | -24.1 | 28.2 | -1.93 | 0.024 | B=14 |
| 13 06 17.310 | +29 03 46.33 | * | 8.58 | 9.10 | 0.52 | 0.03 | 1.01 | 1.45 | 14.97 | -26.7 | 29.3 | -1.84 | 0.024 | I,B=13.9 |
| 13 16 12.398 | +30 57 01.05 | gE | 8.65 | 8.72 | 0.08 | 0.03 | 1.15 | 1.75 | 4.26 | -26.6 | 28.5 | -2.54 | 0.019 | o,I,B=13.7 |
| 13 25 26.444 | +32 36 07.52 | * | 15.86 | 16.73 | 0.87 | 0.04 | 0.24 | 1.13 | 0.86 | ··· | ··· | 0.09 | ··· | O(APS),o |
| 13 30 21.396 | +27 26 07.44 | gO | 17.52 | 19.14 | 1.62 | 0.03 | 0.33 | 1.08 | 1.39 | -20.4 | 29.7 | 1.12 | 0.130 | I |
| 13 34 20.198 | +22 51 38.68 | gO | 16.28 | 17.50 | 1.22 | 0.05 | 0.25 | 1.18 | 2.03 | -21.7 | 29.8 | 0.63 | 0.111 | |
| 13 44 38.001 | +33 36 30.26 | * | 17.14 | 18.83 | 1.69 | 0.06 | 1.00 | 1.06 | 1.06 | -22.1 | 30.1 | 0.86 | 0.240 | |
| 13 53 26.693 | +40 16 58.91 | gE | 10.22 | 8.45 | -1.77 | 0.03 | 0.94 | 36.19 | 38.30 | -25.4 | 28.9 | -1.69 | 0.008 | o,B=12.0 |
| 13 53 38.411 | +36 08 02.61 | gO | 8.90 | 9.80 | 0.91 | 0.04 | 0.06 | 8.53 | 26.40 | -26.3 | 29.6 | -1.32 | 0.027 | o,B=14.0 |
| 13 55 46.357 | +25 09 07.87 | gO | 8.92 | 10.01 | 1.09 | 0.05 | 0.64 | 1.35 | 1.35 | -26.4 | 28.5 | -2.53 | 0.032 | ?,I,B=15.3 |
| 13 56 04.438 | +38 18 15.27 | * | 10.36 | 9.68 | -0.68 | 0.05 | 0.14 | 2.76 | 2.65 | -25.6 | 28.4 | -2.35 | 0.019 | o,I,B=15.0 |
| 14 00 45.814 | +30 04 33.53 | gO | 8.56 | 9.35 | 0.79 | 0.04 | 0.91 | 1.92 | 2.12 | -26.7 | 28.5 | -2.60 | 0.027 | o,I,B=15.1 |
| 14 12 18.458 | +25 31 49.76 | gO | 17.51 | 19.21 | 1.70 | 0.06 | 0.29 | 1.02 | 1.42 | -20.9 | 30.0 | 1.14 | 0.170 | |
| 14 36 15.007 | +25 05 32.52 | gO | 15.56 | 16.53 | 0.97 | 0.08 | 0.44 | 1.08 | 1.41 | -22.2 | 29.4 | 0.09 | 0.090 | |
| 15 24 08.011 | +32 44 06.01 | gO | 14.82 | 16.54 | 1.72 | 0.06 | 0.73 | 1.97 | 2.52 | -22.7 | 29.9 | 0.34 | 0.112 | I |
| 15 29 44.096 | +42 46 40.06 | gO | 9.63 | 10.00 | 0.36 | 0.08 | 0.92 | 1.90 | 2.13 | ··· | ··· | -2.33 | ··· | o,B=14.2 |
| 15 35 52.136 | +39 46 08.25 | gO | 9.07 | 10.93 | 1.86 | 0.06 | 0.58 | 2.94 | 2.99 | -23.8 | 28.2 | -1.81 | 0.015 | o,B=13.1 |
| 15 44 27.619 | +41 07 14.31 | * | 9.00 | 10.18 | 1.17 | 0.06 | 1.14 | 3.49 | 14.07 | -26.3 | 29.5 | -1.44 | 0.032 | o,I,B=13.9 |
| 16 02 23.561 | +36 06 35.39 | gO | 7.65 | 9.04 | 1.38 | 0.07 | 0.24 | 4.62 | 6.41 | -27.3 | 29.1 | -2.24 | 0.031 | o,B=15.3 |
| 16 25 50.029 | +40 29 18.86 | gO | 10.86 | 8.70 | -2.16 | 0.02 | 1.04 | 25.82 | 29.55 | -27.5 | 29.8 | -1.71 | 0.029 | B=15.0 |
| 16 33 25.767 | +26 40 52.02 | gO | 16.61 | 18.55 | 1.93 | 0.19 | 0.15 | 5.74 | 6.11 | -21.1 | 30.4 | 1.52 | 0.135 | |
| 16 37 50.344 | +29 23 31.60 | gO | 17.45 | 19.42 | 1.97 | 0.06 | 0.21 | 1.25 | 0.91 | -19.4 | 29.4 | 1.19 | 0.093 | |
| 16 50 16.232 | +40 09 24.63 | gE | 16.68 | 18.13 | 1.45 | 0.04 | 0.70 | 2.29 | 3.78 | -22.1 | 30.4 | 1.14 | 0.178 | |
| 16 56 43.187 | +27 49 19.42 | gO | 9.39 | 8.92 | -0.47 | 0.15 | 0.87 | 1.54 | 2.69 | -27.7 | 28.9 | -2.67 | 0.035 | B=14.7 |
| 17 14 55.118 | +35 31 12.39 | gE | 8.26 | 8.84 | 0.58 | 0.08 | 1.19 | 1.47 | 5.58 | -27.9 | 29.2 | -2.38 | 0.037 | o,I,B=14.9 |

NOTE.—Table columns are same as Table 2.

TABLE 7
STARS IN FBQS CANDIDATE LIST

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | Notes (11) |
|---|---|---|---|---|---|---|---|---|---|---|
| 06 51 06.134 | +31 19 02.00 | * | 16.57 | 18.15 | 1.58 | 0.29 | 1.06 | 7.29 | 9.64 | E(APS),O(APS) |
| 07 23 07.316 | +28 26 46.57 | * | 16.77 | 18.03 | 1.26 | 0.22 | 0.90 | 1.39 | 0.95 | |
| 07 24 08.835 | +35 00 33.01 | * | 17.74 | 19.32 | 1.58 | 0.14 | 0.91 | 8.77 | 9.49 | |
| 07 27 09.552 | +38 31 39.32 | * | 14.54 | 14.87 | 0.33 | 0.17 | 1.14 | 1.42 | 1.66 | |
| 07 27 35.830 | +37 34 52.58 | gE | 17.60 | 18.59 | 0.99 | 0.15 | 0.14 | 6.10 | 6.81 | ? |
| 07 41 59.817 | +23 31 58.12 | * | 15.59 | 16.49 | 0.90 | 0.15 | 0.82 | 1.25 | 1.55 | |
| 07 46 05.795 | +33 08 47.46 | * | 15.66 | 16.41 | 0.75 | 0.14 | 0.80 | 24.36 | 42.52 | |
| 07 46 29.102 | +39 26 52.78 | * | 16.29 | 17.35 | 1.06 | 0.15 | 0.84 | 1.68 | 1.73 | |
| 07 48 09.719 | +37 09 26.38 | * | 15.52 | 17.05 | 1.53 | 0.24 | 0.52 | 1.05 | 1.26 | |
| 07 49 16.459 | +39 17 22.13 | gE | 14.11 | 16.00 | 1.89 | 0.13 | 0.92 | 1.10 | 3.53 | |
| 07 49 56.001 | +35 56 31.14 | * | 15.97 | 16.15 | 0.18 | 0.16 | 0.60 | 1.29 | 2.38 | |
| 07 54 13.730 | +39 37 20.19 | * | 15.32 | 16.07 | 0.75 | 0.14 | 0.33 | 1.27 | 1.29 | |
| 07 54 36.440 | +31 02 52.37 | * | 15.71 | 17.19 | 1.49 | 0.14 | 1.17 | 3.14 | 5.70 | |
| 07 57 15.873 | +30 10 12.86 | * | 16.57 | 18.36 | 1.79 | 0.13 | 0.21 | 3.57 | 3.82 | |
| 07 58 04.473 | +32 57 19.92 | gE | 16.79 | 18.76 | 1.96 | 0.16 | 1.11 | 1.41 | 1.08 | |
| 08 01 06.610 | +31 58 52.81 | * | 16.99 | 17.93 | 0.94 | 0.13 | 0.88 | 1.40 | 1.80 | |
| 08 09 25.573 | +35 19 06.00 | * | 15.34 | 16.39 | 1.04 | 0.13 | 1.17 | 28.63 | 31.83 | |
| 08 10 08.685 | +39 17 28.71 | * | 15.71 | 17.09 | 1.39 | 0.13 | 0.71 | 4.99 | 4.27 | |
| 08 20 08.253 | +34 59 54.74 | * | 14.25 | 14.68 | 0.43 | 0.15 | 0.38 | 4.42 | 4.81 | |
| 08 48 07.053 | +28 04 16.29 | * | 14.51 | 15.12 | 0.61 | 0.13 | 1.04 | 1.56 | 2.07 | |
| 08 54 18.535 | +28 11 19.05 | * | 15.59 | 16.17 | 0.58 | 0.10 | 1.06 | 1.39 | 1.04 | |
| 08 54 52.606 | +22 23 00.55 | * | 16.77 | 17.66 | 0.90 | 0.09 | 0.21 | 3.15 | 3.00 | |
| 09 06 52.129 | +28 55 50.24 | * | 16.52 | 17.36 | 0.84 | 0.08 | 0.92 | 2.49 | 5.32 | |
| 09 10 33.513 | +34 51 23.24 | * | 16.68 | 17.68 | 1.01 | 0.06 | 0.83 | 3.19 | 2.86 | |
| 09 32 53.265 | +35 37 44.21 | * | 8.73 | 10.49 | 1.75 | 0.04 | 1.19 | 3.00 | 4.72 | |
| 09 38 50.594 | +30 51 34.83 | gO | 11.87 | 12.89 | 1.02 | 0.05 | 0.74 | 1.34 | 1.54 | |
| 09 42 37.334 | +24 00 54.06 | * | 15.33 | 17.23 | 1.90 | 0.08 | 0.57 | 1.15 | 1.26 | |
| 09 51 00.691 | +36 14 32.55 | * | 11.76 | 13.09 | 1.33 | 0.03 | 0.92 | 3.17 | 3.34 | |
| 09 59 26.024 | +27 59 55.20 | * | 13.52 | 15.08 | 1.56 | 0.05 | 0.53 | 9.02 | 8.85 | |
| 10 28 49.259 | +33 15 19.25 | gE | 16.83 | 18.67 | 1.84 | 0.05 | 0.68 | 1.22 | 1.27 | |
| 10 39 54.084 | +31 33 58.56 | * | 14.80 | 15.93 | 1.13 | 0.06 | 0.61 | 1.34 | 9.17 | |
| 11 13 26.652 | +35 15 51.51 | * | 17.72 | 19.55 | 1.82 | 0.05 | 1.05 | 1.70 | 1.07 | |
| 11 18 10.749 | +27 54 25.12 | * | 15.78 | 16.70 | 0.92 | 0.05 | 0.72 | 1.23 | 13.19 | |
| 11 18 58.635 | +38 28 51.96 | * | 17.68 | 17.78 | 0.10 | 0.05 | 0.52 | 4.22 | 4.84 | |
| 11 19 04.943 | +29 51 52.91 | * | 14.55 | 14.12 | -0.43 | 0.04 | 1.05 | 4.40 | 4.99 | |
| 11 24 42.063 | +30 36 37.65 | * | 11.80 | 12.99 | 1.19 | 0.04 | 0.71 | 12.04 | 43.23 | |
| 11 46 54.298 | +32 36 52.24 | * | 17.33 | 18.11 | 0.78 | 0.05 | 0.36 | 14.67 | 15.42 | |
| 11 56 19.683 | +33 18 40.95 | * | 16.80 | 18.74 | 1.94 | 0.05 | 0.42 | 28.78 | 39.27 | |
| 11 58 24.302 | +22 19 13.74 | * | 16.86 | 17.50 | 0.64 | 0.07 | 0.79 | 1.85 | 1.54 | |
| 12 04 47.021 | +29 32 10.67 | * | 17.25 | 18.95 | 1.70 | 0.06 | 0.88 | 1.25 | 0.65 | |
| 12 14 05.981 | +37 26 10.78 | gO | 16.86 | 17.52 | 0.66 | 0.06 | 0.81 | 1.62 | 1.88 | |
| 12 31 29.767 | +23 43 01.40 | * | 11.37 | 13.07 | 1.70 | 0.05 | 0.42 | 1.10 | 1.01 | |
| 12 36 45.931 | +28 35 18.84 | * | 16.63 | 17.37 | 0.74 | 0.05 | 0.41 | 1.47 | 1.04 | |
| 12 40 44.501 | +23 10 45.79 | * | 17.68 | 18.41 | 0.73 | 0.06 | 0.27 | 40.76 | 65.39 | |
| 12 41 09.824 | +24 08 10.50 | * | 16.73 | 17.63 | 0.90 | 0.05 | 1.15 | 2.47 | 3.00 | |
| 12 57 22.637 | +39 37 26.60 | * | 14.29 | 15.28 | 0.99 | 0.04 | 0.68 | 1.19 | 1.04 | |
| 14 04 14.703 | +28 46 36.87 | * | 16.16 | 17.36 | 1.21 | 0.04 | 1.12 | 11.92 | 12.43 | |
| 14 16 15.598 | +35 44 50.48 | * | 17.25 | 19.06 | 1.81 | 0.03 | 1.16 | 1.25 | 1.55 | |
| 14 17 16.102 | +37 14 44.75 | * | 16.24 | 17.91 | 1.66 | 0.03 | 0.33 | 25.92 | 26.34 | |
| 14 21 36.867 | +35 31 18.71 | * | 15.16 | 16.22 | 1.05 | 0.04 | 0.56 | 1.08 | 3.04 | |
| 14 21 42.198 | +33 19 35.64 | * | 16.86 | 18.04 | 1.18 | 0.04 | 0.51 | 1.12 | 1.33 | |
| 14 24 55.517 | +36 15 36.25 | * | 17.41 | 17.95 | 0.54 | 0.02 | 0.25 | 85.17 | 87.77 | |
| 14 32 05.098 | +40 21 31.50 | * | 16.90 | 18.57 | 1.67 | 0.04 | 0.66 | 1.25 | 1.96 | |
| 14 40 48.122 | +40 28 23.50 | gO | 16.28 | 17.14 | 0.86 | 0.04 | 0.50 | 1.00 | 1.25 | |
| 14 44 25.312 | +33 46 49.70 | * | 15.43 | 16.92 | 1.49 | 0.03 | 0.83 | 1.29 | 0.84 | |
| 14 49 32.821 | +30 12 05.26 | * | 17.30 | 18.04 | 0.74 | 0.05 | 1.18 | 10.67 | 16.99 | |
| 15 04 34.577 | +25 27 31.90 | * | 17.44 | 18.34 | 0.90 | 0.10 | 0.75 | 6.10 | 6.49 | |
| 15 07 17.016 | +23 14 43.40 | * | 17.58 | 19.41 | 1.83 | 0.14 | 0.82 | 2.97 | 7.14 | |
| 15 11 36.630 | +36 24 44.30 | * | 12.75 | 13.83 | 1.08 | 0.05 | 1.03 | 2.48 | 2.94 | |
| 15 25 12.532 | +35 19 19.40 | * | 16.62 | 18.19 | 1.57 | 0.05 | 0.82 | 2.72 | 3.68 | |
| 15 30 23.047 | +42 43 29.40 | gE | 17.00 | 18.72 | 1.72 | 0.08 | 0.38 | 1.57 | 2.22 | |
| 15 53 55.861 | +26 59 17.21 | * | 16.50 | 17.71 | 1.21 | 0.11 | 1.04 | 2.06 | 2.17 | |
| 16 14 38.412 | +38 30 58.15 | * | 16.95 | 18.00 | 1.05 | 0.04 | 0.97 | 1.38 | 1.77 | |
| 16 16 35.697 | +35 09 28.53 | gE | 14.82 | 15.68 | 0.86 | 0.06 | 0.58 | 1.35 | 2.50 | I |
| 16 18 46.174 | +32 51 27.29 | * | 16.55 | 17.76 | 1.20 | 0.06 | 0.73 | 4.93 | 4.38 | |
| 16 18 51.744 | +22 11 30.50 | gE | 15.33 | 16.49 | 1.15 | 0.22 | 0.89 | 4.57 | 5.66 | |
| 16 40 18.144 | +38 42 20.00 | * | 12.76 | 13.09 | 0.32 | 0.03 | 0.59 | 4.78 | 4.05 | I,PN |
| 17 00 08.695 | +29 19 04.11 | gO | 16.14 | 17.33 | 1.19 | 0.12 | 0.98 | 3.28 | 3.02 | |
| 17 01 27.814 | +23 20 25.26 | * | 16.64 | 17.32 | 0.68 | 0.15 | 0.67 | 1.04 | 1.75 | |
| 17 04 11.600 | +29 31 53.70 | * | 15.42 | 17.04 | 1.62 | 0.15 | 0.43 | 1.13 | 1.45 | |
| 17 07 18.543 | +38 02 04.14 | * | 16.35 | 17.20 | 0.86 | 0.09 | 0.23 | 1.04 | 0.97 | |

TABLE 7—*Continued*

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | Notes (11) |
|---|---|---|---|---|---|---|---|---|---|---|
| 17 07 26.440 | +28 27 30.03 | * | 14.89 | 15.92 | 1.04 | 0.27 | 0.36 | 2.18 | 4.42 | |
| 17 08 20.213 | +35 53 00.64 | * | 14.33 | 15.43 | 1.11 | 0.06 | 0.71 | 5.38 | 6.41 | |
| 17 09 12.986 | +35 30 17.45 | gO | 14.20 | 14.03 | -0.17 | 0.06 | 0.99 | 1.38 | 2.17 | |
| 17 09 48.432 | +26 13 14.78 | * | 15.89 | 17.33 | 1.44 | 0.09 | 0.86 | 14.82 | 16.14 | |
| 17 10 38.017 | +37 38 51.25 | * | 15.92 | 17.76 | 1.85 | 0.11 | 0.93 | 18.45 | 23.17 | |
| 17 12 39.149 | +27 20 28.77 | * | 17.02 | 18.47 | 1.45 | 0.12 | 1.02 | 2.22 | 2.03 | |
| 17 13 04.499 | +32 13 24.18 | gE | 16.52 | 17.18 | 0.67 | 0.14 | 0.41 | 1.44 | 3.51 | |
| 17 13 09.366 | +22 15 02.73 | * | 14.80 | 16.00 | 1.20 | 0.14 | 0.58 | 1.38 | 1.34 | |
| 17 15 48.825 | +34 57 46.21 | gO | 16.75 | 17.79 | 1.03 | 0.09 | 1.14 | 1.15 | 0.87 | I |
| 17 15 52.779 | +27 18 15.24 | gO | 13.66 | 15.48 | 1.82 | 0.16 | 1.08 | 3.80 | 4.67 | |
| 17 16 41.366 | +33 14 43.60 | * | 15.36 | 16.57 | 1.21 | 0.12 | 1.16 | 2.84 | 2.27 | |
| 17 17 16.039 | +35 31 05.75 | * | 17.54 | 18.71 | 1.17 | 0.10 | 0.41 | 1.20 | 3.30 | O(APS) |
| 17 17 48.208 | +39 35 14.22 | * | 12.48 | 14.47 | 1.99 | 0.11 | 0.80 | 2.67 | 5.21 | |
| 17 18 01.678 | +34 04 49.35 | * | 16.26 | 17.20 | 0.94 | 0.08 | 0.95 | 1.94 | 1.61 | |
| 17 19 48.610 | +35 18 01.13 | gE | 15.20 | 17.11 | 1.91 | 0.09 | 1.00 | 9.09 | 10.19 | |
| 17 20 11.727 | +41 28 26.57 | gO | 17.53 | 17.96 | 0.43 | 0.07 | 0.90 | 22.80 | 49.20 | |
| 17 22 47.472 | +32 00 37.83 | * | 16.75 | 17.70 | 0.95 | 0.11 | 0.90 | 1.91 | 1.45 | |

NOTE.—Table columns are same as Table 2, except that redshift, absolute magnitudes, etc., are omitted for these Galactic objects. One object, marked PN in the notes column, is a halo-population planetary nebula.

TABLE 8
OBJECTS WITHOUT SPECTRA IN FBQS CANDIDATE LIST

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | P(Q) (11) | Notes (12) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 07 15 05.450 | +34 05 01.50 | * | 17.43 | 18.28 | 0.85 | 0.13 | 1.00 | 2.15 | 2.61 | 0.43 | |
| 07 16 50.696 | +35 05 20.30 | gO | 17.39 | 19.23 | 1.84 | 0.15 | 0.54 | 1.33 | 0.80 | 0.11 | |
| 07 19 03.275 | +34 25 50.27 | gE | 15.19 | 16.23 | 1.04 | 0.14 | 1.15 | 9.81 | 21.65 | 0.12 | |
| 07 30 18.190 | +22 45 02.12 | gO | 17.39 | 19.07 | 1.68 | 0.14 | 0.38 | 1.12 | 1.42 | 0.11 | |
| 07 32 37.941 | +34 29 52.90 | gE | 17.76 | 19.68 | 1.91 | 0.14 | 0.24 | 1.30 | 1.98 | 0.11 | I |
| 07 33 17.396 | +22 37 25.01 | gO | 17.33 | 19.13 | 1.81 | 0.19 | 0.28 | 1.68 | 3.20 | 0.11 | |
| 07 38 33.547 | +36 09 57.12 | gO | 17.51 | 19.44 | 1.92 | 0.15 | 0.08 | 2.20 | 1.66 | 0.11 | |
| 07 43 42.266 | +32 15 43.52 | gO | 17.34 | 18.46 | 1.11 | 0.12 | 1.05 | 2.78 | 2.44 | 0.15 | |
| 08 27 11.207 | +22 33 23.50 | gO | 17.20 | 18.91 | 1.71 | 0.12 | 0.83 | 2.30 | 2.23 | 0.11 | |
| 08 35 22.735 | +42 42 58.75 | * | 17.06 | 17.70 | 0.65 | 0.07 | 0.58 | 1.33 | 0.96 | 0.86 | |
| 08 55 52.740 | +38 43 25.79 | gO | 17.53 | 19.11 | 1.58 | 0.07 | 0.44 | 1.51 | 0.93 | 0.11 | |
| 08 56 24.852 | +34 50 24.83 | gO | 17.20 | 19.17 | 1.97 | 0.08 | 0.15 | 8.64 | 8.51 | 0.13 | I |
| 09 13 09.264 | +41 36 35.18 | * | 16.33 | 17.56 | 1.23 | 0.06 | 1.14 | 1.03 | 2.59 | 0.31 | |
| 09 18 33.851 | +31 56 20.45 | gE | 17.69 | 18.74 | 1.04 | 0.05 | 0.85 | 1.26 | 1.21 | 0.33 | X |
| 09 18 45.785 | +23 38 33.53 | gE | 17.00 | 18.77 | 1.77 | 0.16 | 0.36 | 1.19 | 0.80 | 0.11 | |
| 09 34 56.726 | +26 30 54.49 | gO | 17.70 | 19.20 | 1.49 | 0.05 | 0.95 | 1.02 | 1.21 | 0.11 | |
| 10 13 55.238 | +30 05 46.81 | * | 17.76 | 18.46 | 0.69 | 0.08 | 0.90 | 1.38 | 2.22 | 0.65 | |
| 10 28 02.937 | +30 47 43.55 | * | 17.72 | 19.58 | 1.87 | 0.05 | 0.94 | 1.12 | 1.17 | 0.11 | |
| 10 28 57.616 | +34 40 54.41 | * | 17.76 | 19.66 | 1.90 | 0.05 | 1.03 | 1.41 | 1.45 | 0.11 | |
| 10 33 46.379 | +23 32 20.09 | * | 17.51 | 18.40 | 0.88 | 0.06 | 0.20 | 8.97 | 8.93 | 0.87 | |
| 10 38 18.198 | +42 44 42.85 | gE | 17.54 | 19.22 | 1.67 | 0.04 | 0.15 | 78.28 | 80.28 | 0.52 | |
| 10 53 30.963 | +33 13 42.16 | gE | 17.19 | 19.10 | 1.91 | 0.06 | 0.30 | 2.72 | 2.69 | 0.11 | I |
| 10 54 26.029 | +42 32 30.94 | gE | 17.53 | 18.79 | 1.26 | 0.04 | 0.32 | 3.36 | 4.05 | ··· | E(APS),O(APS) |
| 10 56 53.384 | +33 19 45.12 | gE | 14.94 | 16.75 | 1.81 | 0.05 | 0.65 | 2.32 | 2.53 | 0.11 | I |
| 11 01 13.801 | +32 31 55.22 | gE | 15.35 | 17.15 | 1.80 | 0.06 | 0.59 | 1.10 | 2.38 | 0.11 | |
| 11 22 42.834 | +41 43 55.69 | gO | 16.99 | 18.66 | 1.67 | 0.05 | 1.13 | 1.34 | 2.37 | 0.11 | |
| 11 25 20.786 | +26 37 49.55 | * | 17.68 | 18.49 | 0.81 | 0.05 | 0.73 | 30.98 | 36.53 | ··· | E(APS) |
| 11 30 20.404 | +42 22 04.09 | * | 17.77 | 18.53 | 0.76 | 0.05 | 0.34 | 2.01 | 2.27 | 0.87 | |
| 11 31 24.210 | +26 19 51.45 | * | 17.64 | 18.12 | 0.48 | 0.05 | 0.50 | 3.65 | 3.48 | 0.88 | |
| 11 33 24.786 | +32 34 49.30 | * | 17.60 | 18.86 | 1.26 | 0.07 | 0.83 | 13.14 | 13.20 | 0.63 | |
| 11 34 42.086 | +41 13 30.11 | * | 17.80 | 18.07 | 0.28 | 0.06 | 0.15 | 42.45 | 47.04 | 0.88 | |
| 11 36 09.065 | +36 06 41.72 | gO | 17.68 | 19.16 | 1.48 | 0.05 | 0.91 | 1.18 | 1.31 | 0.11 | |
| 11 36 39.177 | +37 26 51.57 | gE | 17.01 | 18.20 | 1.19 | 0.07 | 0.39 | 17.53 | 21.80 | 0.29 | |
| 11 37 07.730 | +29 03 24.27 | * | 17.80 | 18.14 | 0.33 | 0.06 | 0.45 | 20.30 | 23.06 | 0.88 | |
| 11 39 21.210 | +35 07 48.30 | * | 17.03 | 18.53 | 1.49 | 0.05 | 0.40 | 1.17 | 0.56 | 0.20 | |
| 11 40 48.084 | +33 29 08.50 | * | 17.71 | 18.31 | 0.60 | 0.06 | 0.19 | 21.07 | 22.73 | 0.88 | |
| 11 41 11.118 | +30 04 42.66 | * | 17.18 | 17.72 | 0.54 | 0.06 | 0.75 | 1.00 | 1.35 | 0.84 | |
| 11 52 44.450 | +31 11 23.88 | gE | 17.37 | 19.29 | 1.92 | 0.05 | 0.84 | 1.15 | 1.38 | 0.11 | |
| 11 59 43.881 | +30 33 48.95 | * | 17.54 | 18.92 | 1.38 | 0.04 | 0.51 | 1.49 | 2.01 | 0.11 | |
| 12 03 54.768 | +37 11 37.36 | * | 17.67 | 17.79 | 0.12 | 0.05 | 0.13 | 4.59 | 4.57 | 0.88 | X |
| 12 09 08.415 | +26 51 31.94 | gE | 17.66 | 18.13 | 0.47 | 0.05 | 0.98 | 1.19 | 1.70 | 0.69 | |
| 12 11 47.120 | +24 07 36.69 | * | 17.61 | 19.36 | 1.75 | 0.09 | 0.80 | 1.40 | 1.61 | 0.11 | |
| 12 12 32.373 | +42 58 21.99 | * | 17.40 | 18.43 | 1.03 | 0.04 | 0.05 | 37.58 | 41.96 | 0.87 | |
| 12 13 55.332 | +36 52 55.74 | * | 17.37 | 18.53 | 1.16 | 0.06 | 0.82 | 1.14 | 1.77 | 0.11 | |
| 12 15 29.648 | +39 12 00.51 | * | 17.65 | 19.26 | 1.61 | 0.05 | 1.12 | 1.01 | 1.32 | 0.11 | |
| 12 17 27.863 | +29 04 49.59 | gE | 17.65 | 19.24 | 1.59 | 0.05 | 0.59 | 1.10 | 4.04 | 0.11 | |
| 12 19 02.540 | +22 24 16.59 | gE | 17.78 | 19.65 | 1.86 | 0.07 | 0.03 | 7.32 | 7.49 | 0.31 | |
| 12 20 04.385 | +31 11 48.08 | * | 17.52 | 17.95 | 0.43 | 0.05 | 0.05 | 26.21 | 28.41 | 0.88 | |
| 12 20 34.613 | +36 33 57.38 | gO | 17.07 | 18.98 | 1.91 | 0.05 | 0.11 | 1.35 | 1.28 | 0.11 | |
| 12 22 08.184 | +24 00 12.31 | * | 17.66 | 19.26 | 1.60 | 0.06 | 0.26 | 7.21 | 7.12 | 0.14 | |
| 12 22 21.377 | +37 23 35.73 | gO | 17.15 | 18.06 | 0.91 | 0.04 | 0.43 | 10.38 | 10.21 | 0.65 | |
| 12 22 51.382 | +33 16 40.80 | * | 17.45 | 19.08 | 1.63 | 0.04 | 0.59 | 2.55 | 2.96 | 0.56 | |
| 12 24 07.371 | +37 53 32.65 | * | 17.79 | 19.38 | 1.59 | 0.03 | 0.56 | 1.22 | 0.88 | 0.11 | |
| 12 25 20.497 | +29 24 20.25 | * | 17.76 | 19.04 | 1.28 | 0.06 | 0.46 | 2.30 | 1.93 | 0.85 | |
| 12 28 56.688 | +35 56 35.38 | * | 17.50 | 17.61 | 0.11 | 0.04 | 0.86 | 8.68 | 9.99 | 0.88 | |
| 12 36 59.550 | +42 36 41.56 | * | 17.27 | 17.99 | 0.72 | 0.07 | 0.13 | 193.40 | 197.82 | 0.87 | I |
| 12 37 57.924 | +22 34 30.41 | * | 17.65 | 18.03 | 0.37 | 0.06 | 0.32 | 155.96 | 176.43 | 0.88 | |
| 12 43 27.825 | +23 28 11.35 | gE | 17.31 | 18.21 | 0.90 | 0.06 | 0.68 | 2.33 | 2.63 | 0.64 | I |
| 12 44 44.575 | +22 33 05.35 | gO | 17.60 | 19.47 | 1.87 | 0.08 | 0.11 | 1.75 | 2.58 | 0.15 | |
| 12 48 40.446 | +24 12 40.78 | * | 17.50 | 18.12 | 0.61 | 0.04 | 0.13 | 2.91 | 3.40 | 0.88 | |
| 12 49 58.854 | +24 52 33.40 | * | 17.74 | 18.75 | 1.01 | 0.04 | 0.45 | 7.54 | 8.43 | 0.87 | |
| 12 50 18.184 | +36 49 14.06 | gO | 17.68 | 19.58 | 1.91 | 0.05 | 1.00 | 1.49 | 1.15 | 0.11 | I |
| 12 51 42.267 | +24 04 35.10 | * | 17.34 | 17.84 | 0.50 | 0.03 | 0.60 | 1.62 | 1.51 | 0.86 | X |
| 12 52 56.997 | +25 25 03.27 | * | 17.41 | 17.68 | 0.28 | 0.03 | 0.49 | 1.39 | 1.43 | 0.88 | |
| 12 54 44.719 | +42 53 05.23 | * | 17.15 | 18.16 | 1.01 | 0.05 | 0.06 | 1.95 | 1.62 | 0.84 | |
| 13 18 23.430 | +26 26 23.00 | gE | 17.75 | 18.18 | 0.44 | 0.04 | 0.34 | 6.35 | 6.36 | 0.87 | |
| 13 18 48.337 | +25 28 15.40 | * | 17.65 | 18.26 | 0.62 | 0.04 | 0.90 | 1.34 | 1.44 | 0.70 | |
| 13 23 24.153 | +25 18 09.58 | gO | 17.79 | 18.59 | 0.79 | 0.03 | 0.23 | 5.77 | 5.59 | 0.87 | |
| 13 25 57.665 | +33 13 34.10 | gO | 17.40 | 19.30 | 1.90 | 0.03 | 0.54 | 1.41 | 2.01 | ··· | E(APS),O(APS) |
| 13 40 34.727 | +42 32 32.32 | * | 17.70 | 18.44 | 0.74 | 0.03 | 0.61 | 5.39 | 5.17 | ··· | E(APS),O(APS) |
| 13 45 31.092 | +25 55 04.47 | * | 13.08 | 14.00 | 0.92 | 0.03 | 1.07 | 4.20 | 4.14 | 0.12 | |

TABLE 8—*Continued*

| RA (1) | Dec (2) | Cl (3) | E (4) | O (5) | O-E (6) | A(E) (7) | Sep (8) | $S_p$ (9) | $S_i$ (10) | P(Q) (11) | Notes (12) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 45 40.043 | +28 01 23.35 | gE | 17.79 | 19.66 | 1.87 | 0.04 | 0.58 | 13.25 | 13.83 | 0.13 | |
| 14 08 19.354 | +29 49 50.57 | * | 17.78 | 18.12 | 0.34 | 0.04 | 0.06 | 21.51 | 22.21 | 0.88 | |
| 14 12 57.767 | +23 26 18.93 | * | 17.76 | 18.05 | 0.29 | 0.06 | 0.34 | 7.47 | 8.83 | 0.88 | |
| 14 21 34.300 | +42 19 17.22 | gE | 15.17 | 16.85 | 1.67 | 0.03 | 0.57 | 2.11 | 2.06 | ··· | O(APS) |
| 14 36 55.700 | +23 49 28.33 | gO | 17.62 | 19.26 | 1.64 | 0.09 | 0.95 | 1.86 | 2.02 | 0.15 | |
| 14 40 53.990 | +27 06 42.23 | * | 17.49 | 17.27 | -0.23 | 0.06 | 1.05 | 1.21 | 0.83 | 0.87 | |
| 14 47 55.745 | +38 28 13.50 | * | 17.79 | 19.06 | 1.27 | 0.03 | 0.73 | 1.18 | 2.28 | 0.11 | |
| 14 50 07.236 | +31 50 50.77 | * | 17.78 | 17.98 | 0.20 | 0.03 | 0.45 | 1.77 | 1.68 | 0.88 | |
| 15 02 28.568 | +35 44 55.51 | gO | 17.12 | 19.01 | 1.90 | 0.04 | 0.26 | 2.50 | 2.63 | 0.11 | |
| 15 04 28.039 | +26 24 19.54 | * | 17.57 | 17.90 | 0.33 | 0.13 | 0.13 | 4.17 | 8.82 | 0.88 | |
| 15 04 35.882 | +33 57 28.60 | gO | 17.76 | 19.39 | 1.63 | 0.04 | 0.28 | 1.58 | 1.18 | 0.11 | |
| 15 05 55.493 | +42 44 15.86 | * | 17.59 | 18.49 | 0.89 | 0.05 | 0.80 | 1.41 | 1.07 | 0.72 | |
| 15 06 24.223 | +32 25 51.05 | gE | 14.11 | 15.09 | 0.99 | 0.05 | 0.21 | 3.39 | 3.21 | ··· | O(APS),I |
| 15 13 14.945 | +34 21 11.86 | * | 17.48 | 18.61 | 1.13 | 0.04 | 0.62 | 1.36 | 1.32 | 0.68 | |
| 15 16 27.376 | +30 52 20.46 | * | 17.52 | 19.05 | 1.53 | 0.05 | 0.62 | 1.08 | 0.87 | 0.63 | |
| 15 19 13.471 | +25 21 34.24 | * | 17.65 | 18.32 | 0.67 | 0.13 | 1.06 | 1.38 | 0.93 | 0.87 | |
| 15 19 58.370 | +35 20 36.67 | gE | 15.20 | 16.13 | 0.93 | 0.05 | 0.89 | 2.10 | 2.51 | ··· | O(APS),I |
| 15 20 49.134 | +37 52 19.18 | * | 17.48 | 18.02 | 0.54 | 0.04 | 0.37 | 1.83 | 1.38 | 0.88 | |
| 15 21 49.082 | +37 39 42.42 | gO | 17.51 | 18.50 | 0.99 | 0.04 | 0.64 | 1.64 | 1.68 | ··· | E(APS),O(APS),I |
| 15 21 58.455 | +38 18 14.12 | * | 17.65 | 18.71 | 1.06 | 0.04 | 1.12 | 1.17 | 1.30 | 0.61 | |
| 15 25 47.234 | +42 52 10.75 | * | 17.72 | 18.31 | 0.59 | 0.08 | 0.08 | 1.49 | 0.89 | 0.88 | |
| 15 34 02.247 | +42 52 49.41 | * | 17.74 | 18.28 | 0.54 | 0.07 | 0.18 | 8.33 | 8.54 | 0.88 | |
| 15 34 11.348 | +26 21 24.53 | gE | 16.21 | 17.92 | 1.71 | 0.13 | 0.42 | 1.16 | 0.79 | 0.11 | |
| 15 34 20.266 | +41 30 07.65 | * | 17.36 | 19.26 | 1.91 | 0.07 | 0.40 | 5.36 | 5.39 | 0.42 | |
| 15 35 21.688 | +33 18 26.48 | * | 17.62 | 18.62 | 1.00 | 0.09 | 0.04 | 8.66 | 8.88 | 0.87 | |
| 15 38 18.661 | +41 05 48.43 | * | 17.51 | 17.88 | 0.36 | 0.07 | 0.86 | 26.03 | 50.37 | 0.87 | |
| 15 40 07.638 | +25 28 36.79 | gO | 17.65 | 16.42 | -1.23 | 0.14 | 0.87 | 1.23 | 1.22 | 0.48 | |
| 15 40 49.233 | +39 03 51.67 | * | 17.59 | 18.16 | 0.57 | 0.06 | 0.72 | 1.03 | 1.61 | 0.86 | I |
| 15 44 33.216 | +32 21 49.09 | * | 17.69 | 17.79 | 0.09 | 0.08 | 0.19 | 11.39 | 12.02 | ··· | E(APS),O(APS) |
| 15 55 37.559 | +22 13 27.11 | gO | 17.78 | 19.72 | 1.94 | 0.16 | 1.14 | 1.12 | 2.32 | 0.11 | |
| 15 57 23.917 | +42 08 25.92 | * | 17.64 | 18.44 | 0.80 | 0.05 | 0.52 | 1.16 | 0.70 | 0.87 | |
| 16 05 31.114 | +24 31 47.59 | * | 17.58 | 19.50 | 1.91 | 0.17 | 0.13 | 1.51 | 1.26 | 0.51 | |
| 16 22 37.898 | +23 59 43.51 | * | 17.76 | 19.51 | 1.75 | 0.17 | 0.96 | 1.02 | 2.80 | 0.11 | |
| 16 26 45.766 | +42 57 09.38 | * | 17.72 | 18.36 | 0.64 | 0.03 | 0.18 | 6.70 | 7.00 | ··· | O(APS) |
| 16 37 18.861 | +27 26 07.71 | * | 17.80 | 17.96 | 0.16 | 0.15 | 0.43 | 30.26 | 32.36 | 0.88 | |
| 16 47 33.911 | +36 40 55.40 | * | 17.77 | 18.56 | 0.79 | 0.07 | 0.66 | 1.12 | 0.75 | 0.87 | |
| 17 07 53.932 | +27 24 18.64 | * | 17.37 | 18.25 | 0.89 | 0.23 | 1.11 | 1.22 | 3.16 | 0.27 | |

NOTE.—Table columns are same as Table 7, with the addition of Col. 11. $P(Q)$ is the probability that the candidate is a quasar, computed using decision trees as described in the text. All source parameters including color were used. APS objects do not have values because the APS catalog does not have the APM PSF parameters used by the classifier.

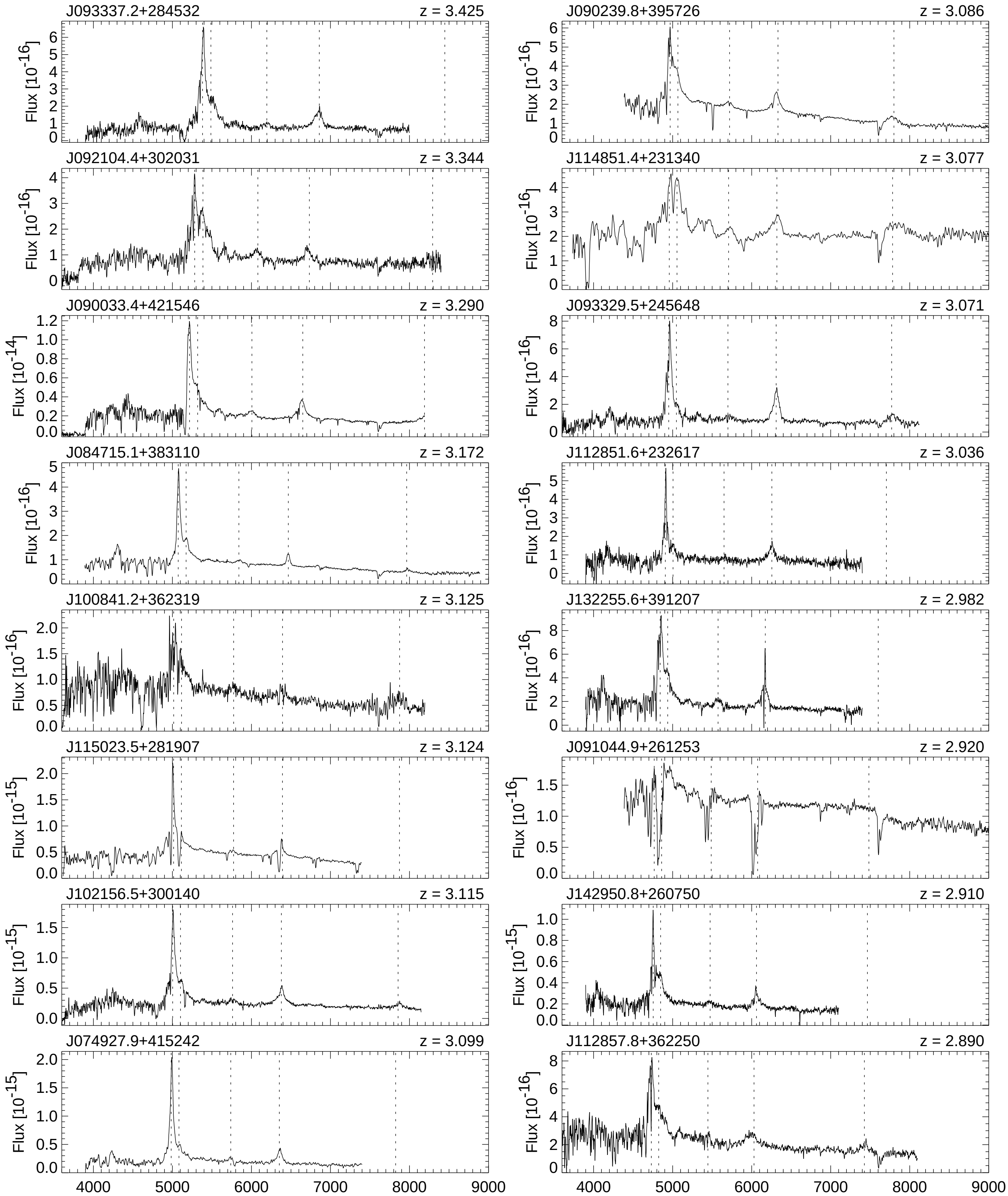


FIG. 16.— Spectra of FBQS candidates identified as quasars, sorted by decreasing redshift. The dotted lines show expected positions of prominent emission lines: Ly$\alpha$ 1216, N V 1240, Si IV 1400, C IV 1550, C III] 1909, Mg II 2800, H$\delta$ 4102, H$\gamma$ 4341, H$\beta$ 4862, [O III] 4959, [O III] 5007, H$\alpha$ 6563. Note that most of the spectra have atmospheric A and B band absorption at $\sim$ 6880 A and 7620 A.

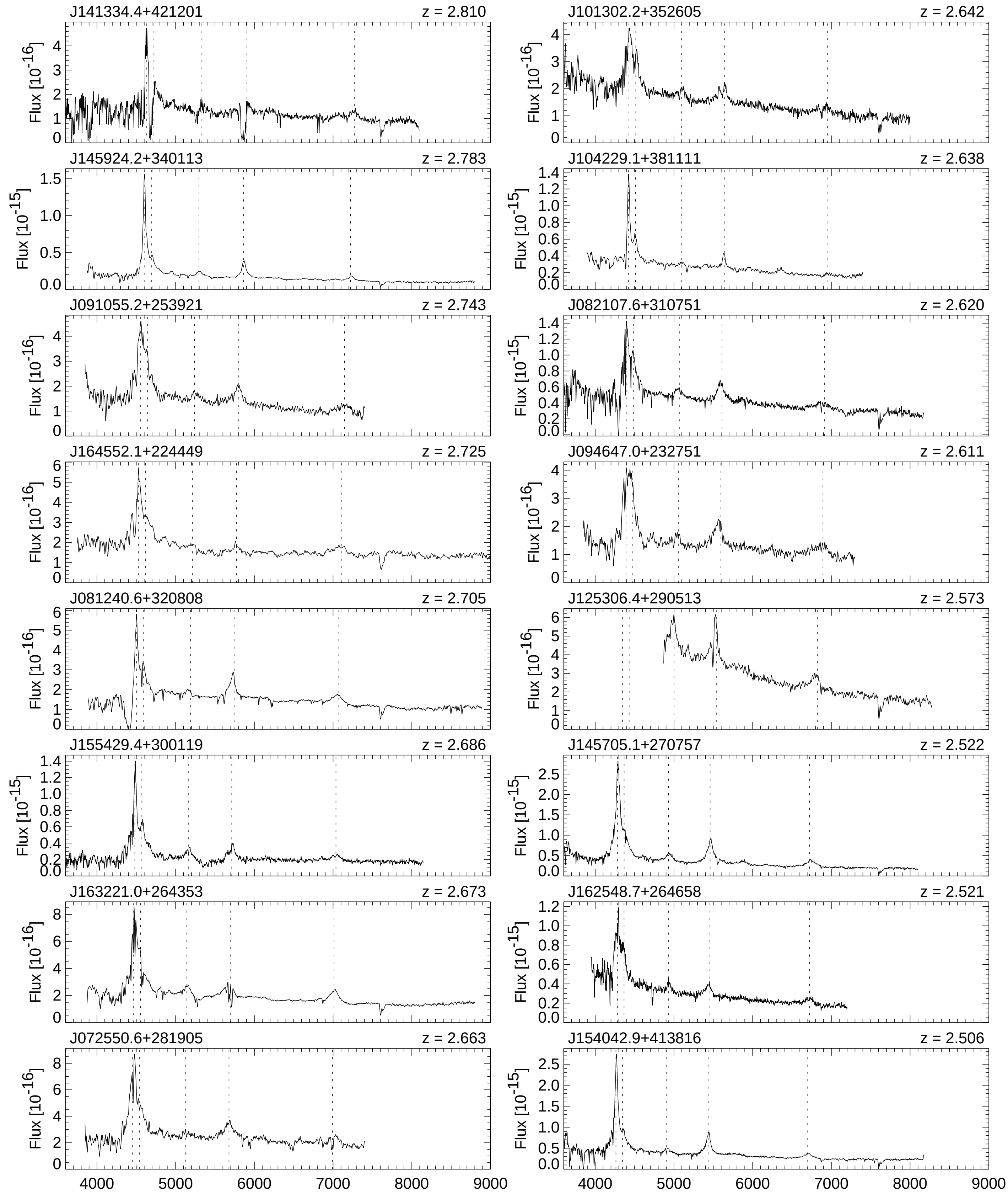


FIG. 16.— *Continued.* Spectra of FBQS quasars.

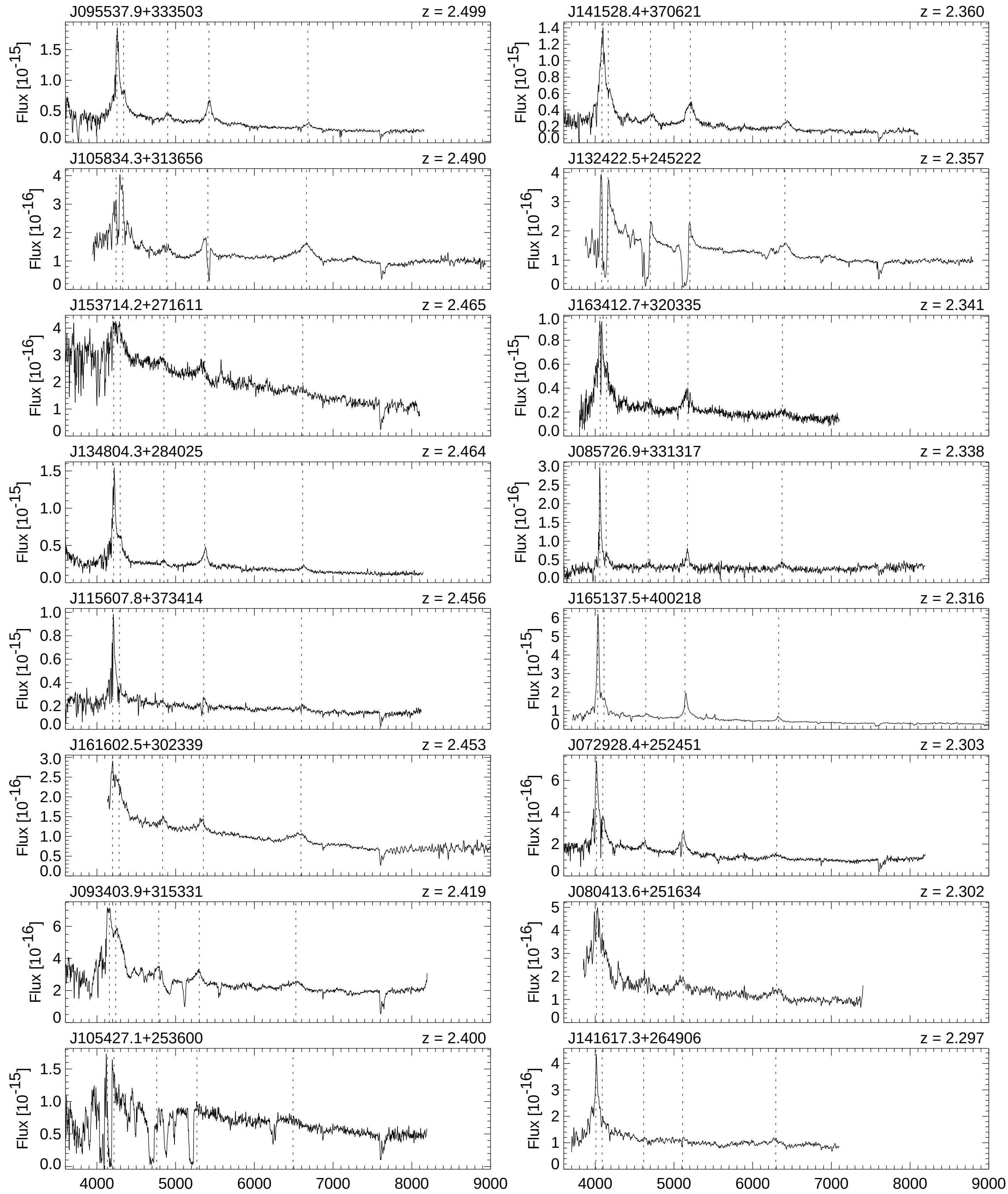


FIG. 16.— *Continued.* Spectra of FBQS quasars.

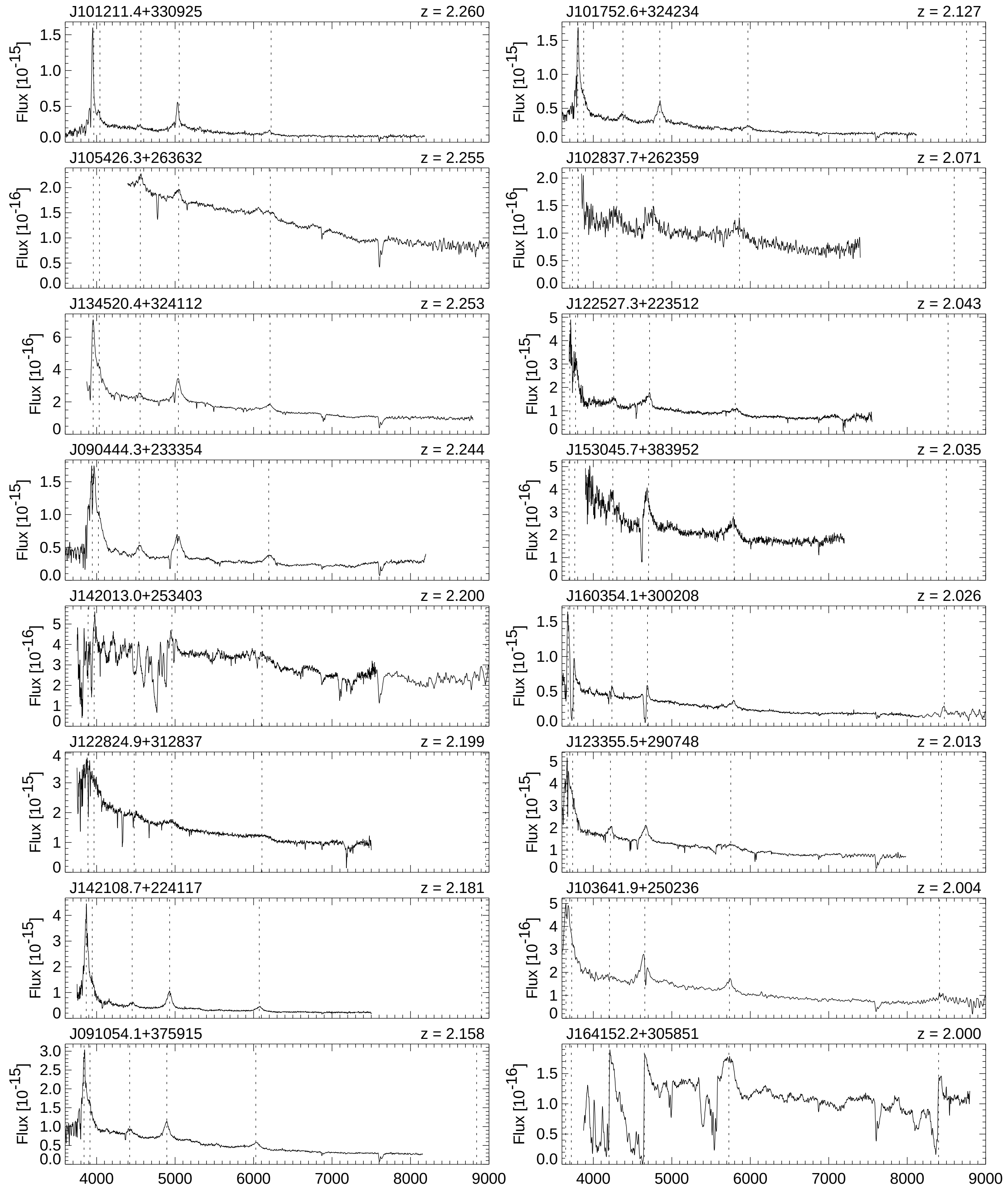


FIG. 16.— *Continued.* Spectra of FBQS quasars.

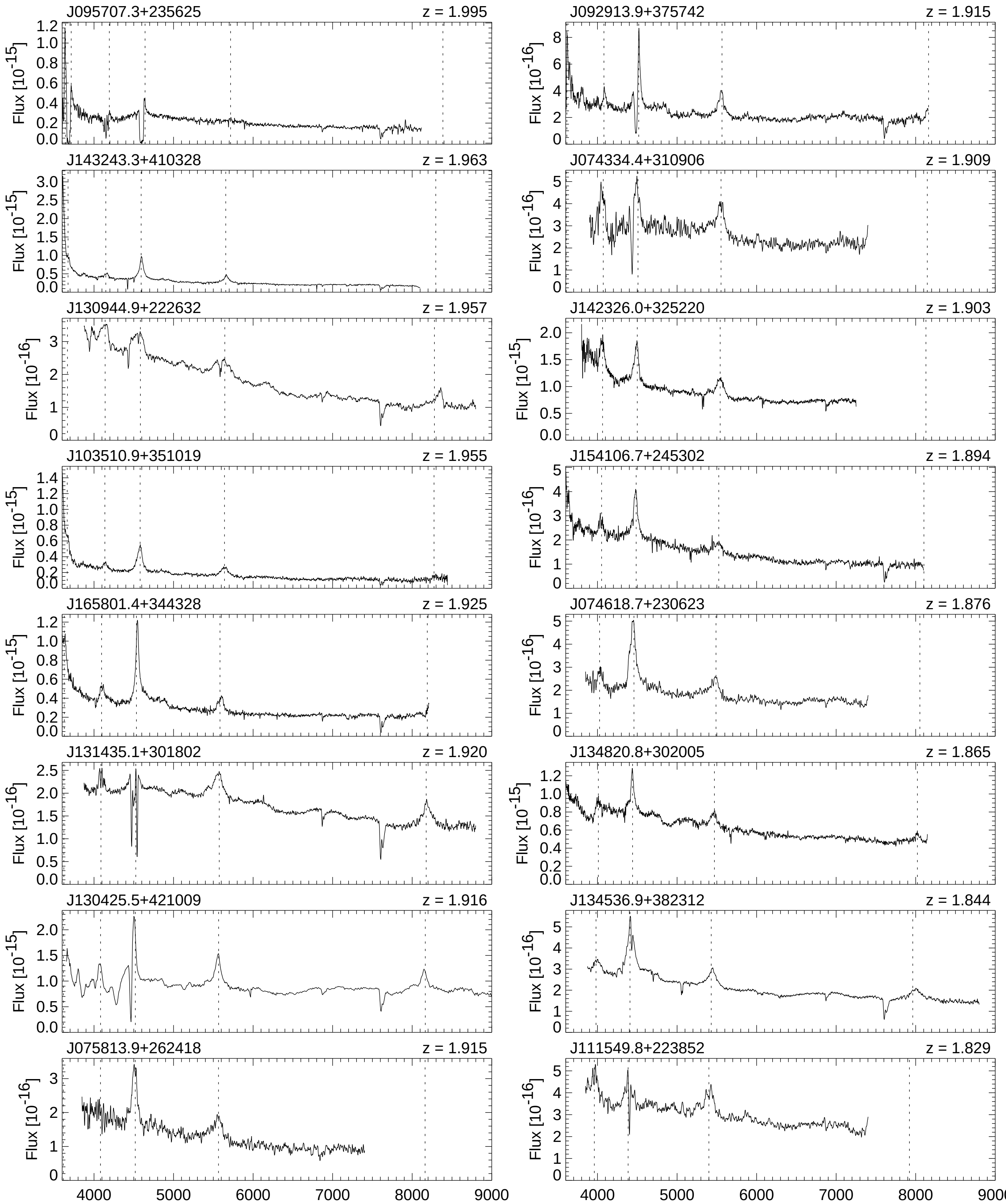


FIG. 16.— *Continued.* Spectra of FBQS quasars.

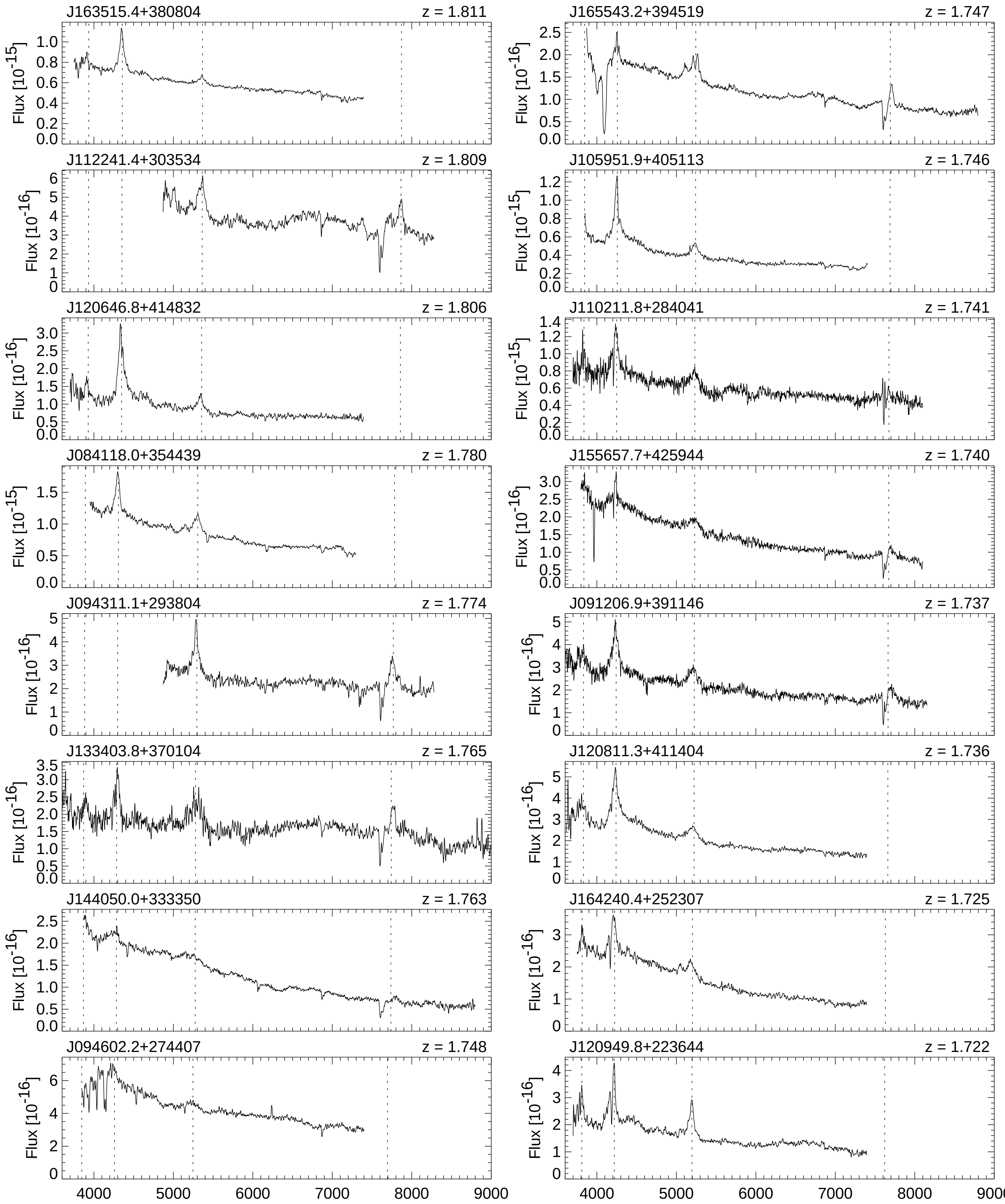


FIG. 16.— *Continued.* Spectra of FBQS quasars.

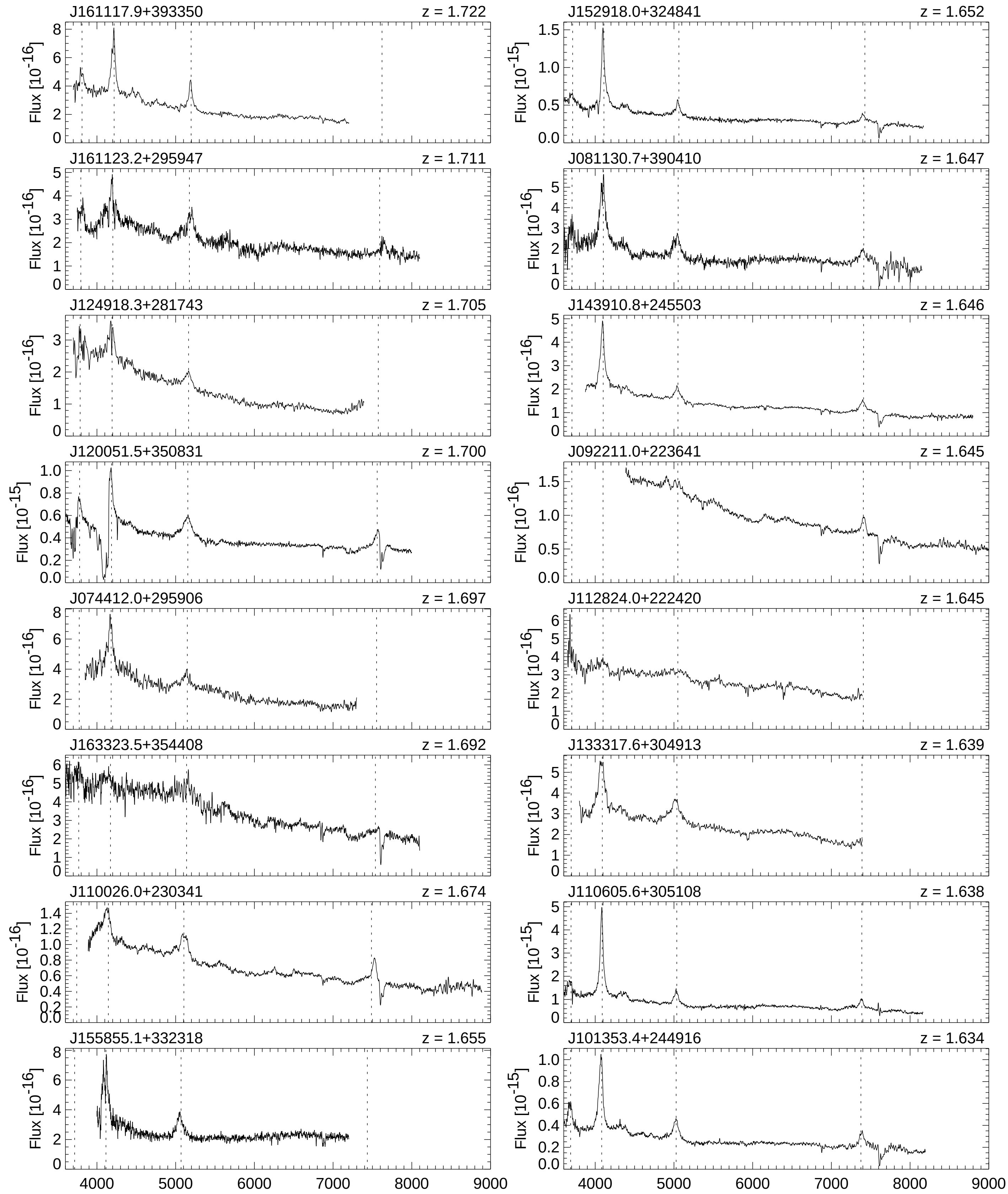


FIG. 16.— *Continued.* Spectra of FBQS quasars.

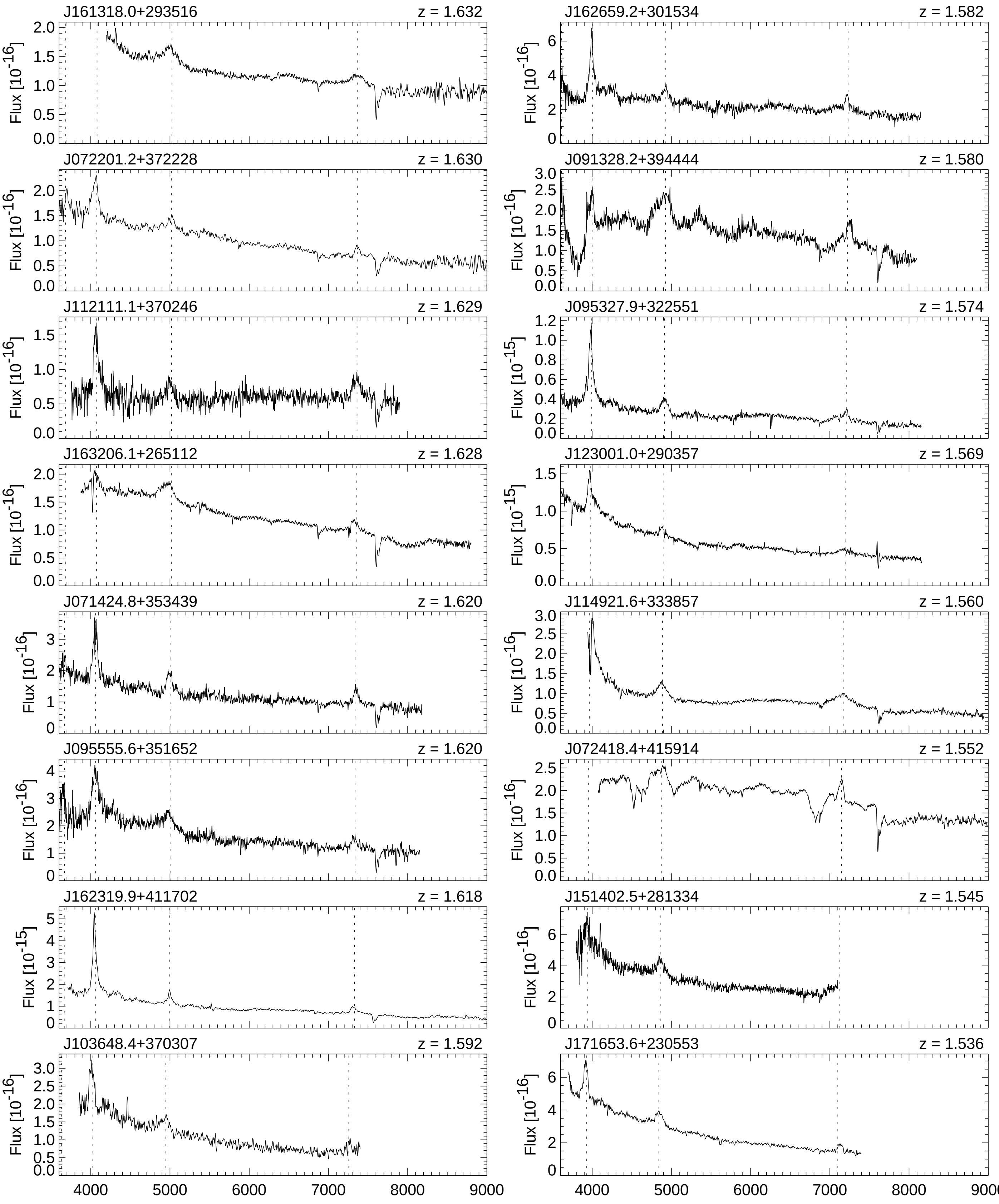


FIG. 16.— *Continued.* Spectra of FBQS quasars.

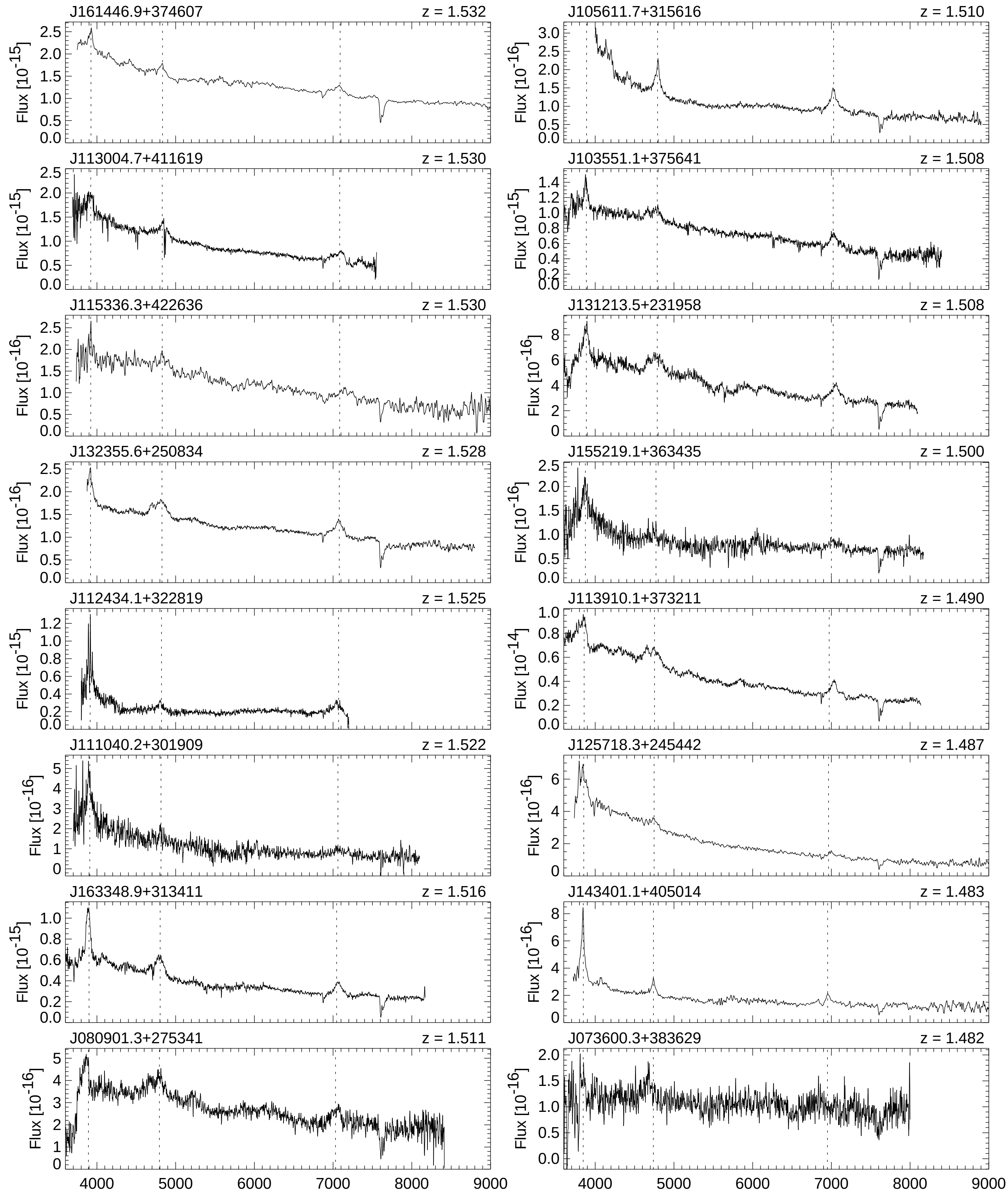


FIG. 16.— *Continued.* Spectra of FBQS quasars.

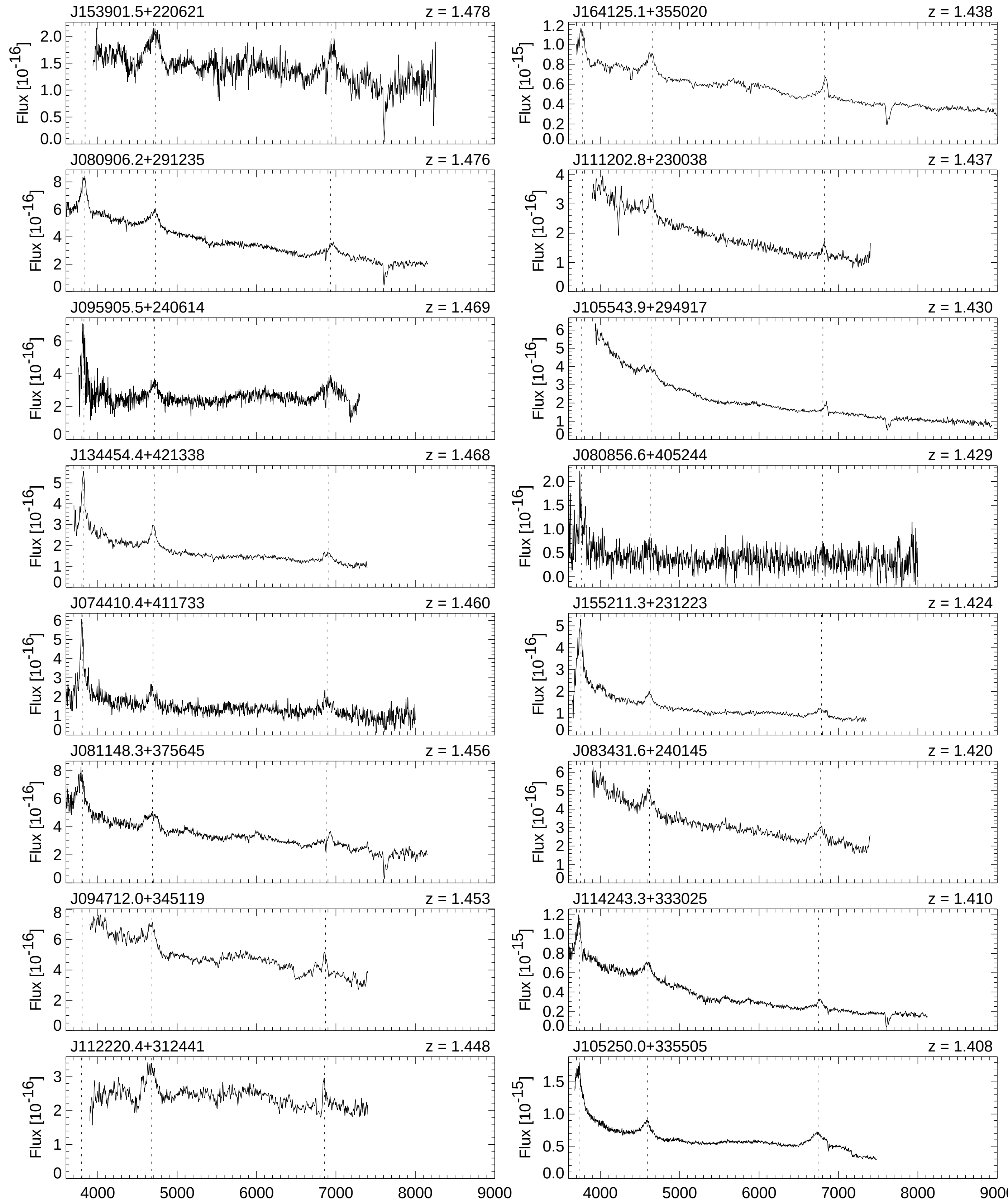


FIG. 16.— *Continued.* Spectra of FBQS quasars.

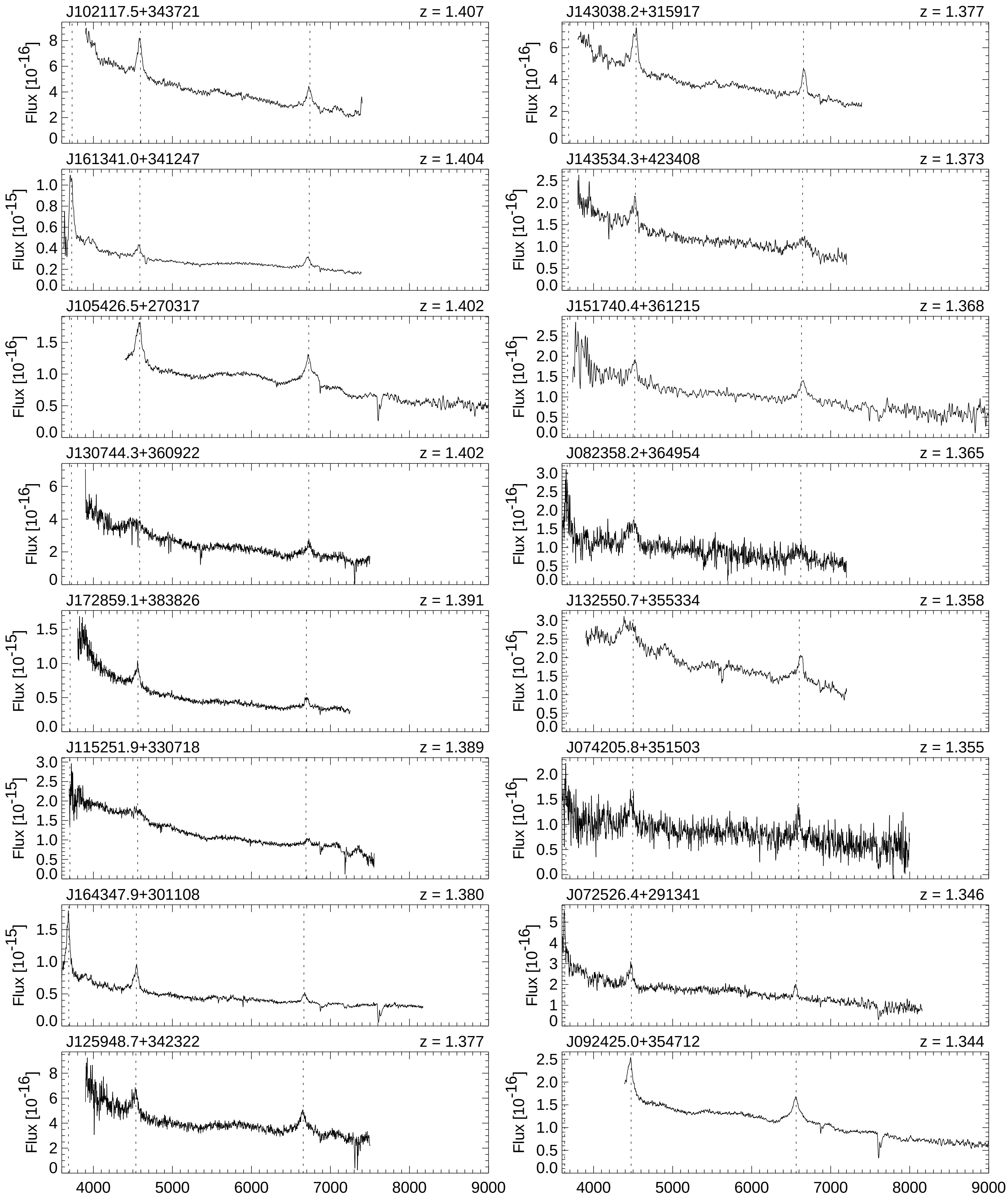


FIG. 16.— *Continued.* Spectra of FBQS quasars.

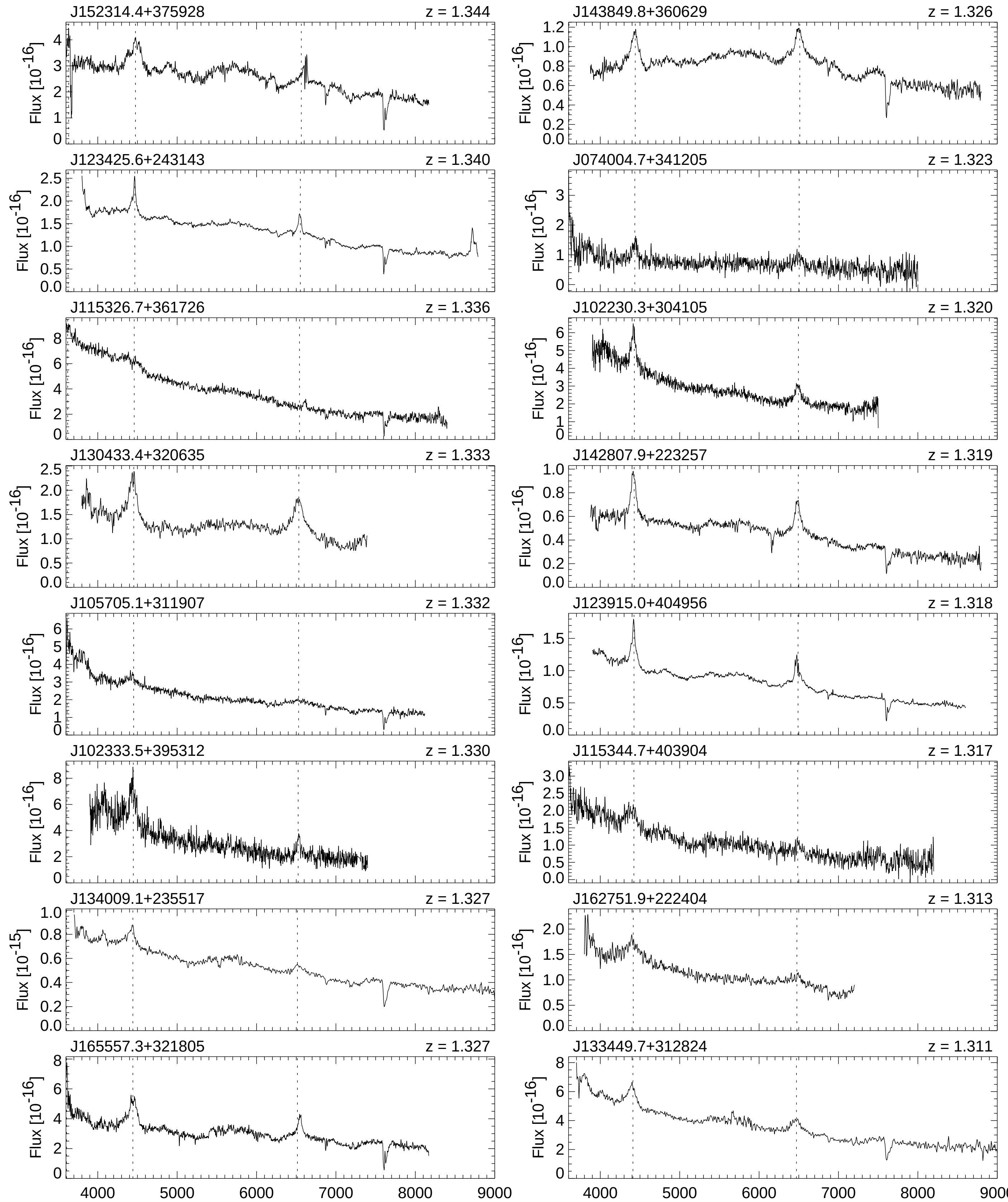


FIG. 16.— *Continued.* Spectra of FBQS quasars.

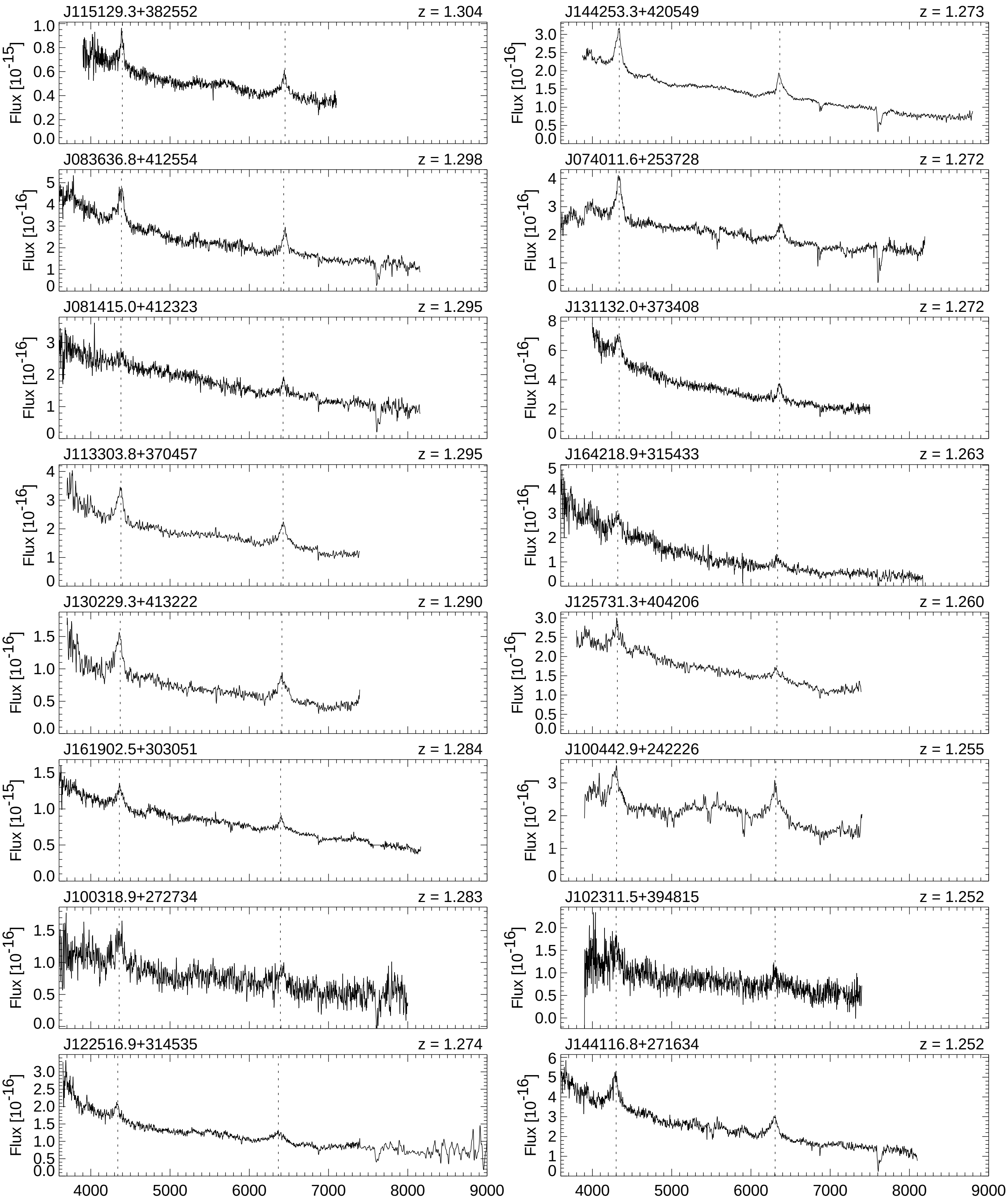


FIG. 16.— *Continued.* Spectra of FBQS quasars.

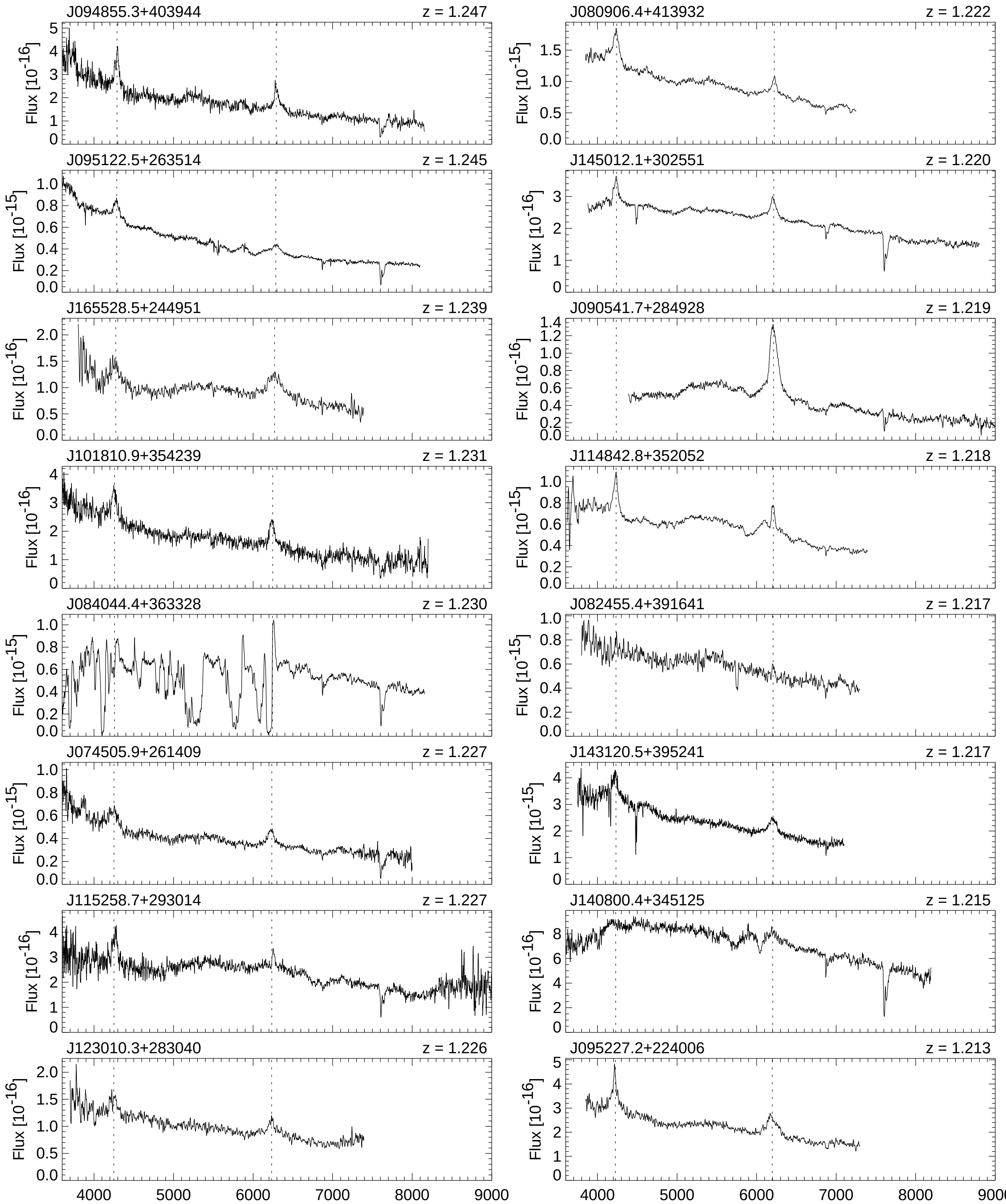


FIG. 16.— *Continued.* Spectra of FBQS quasars.

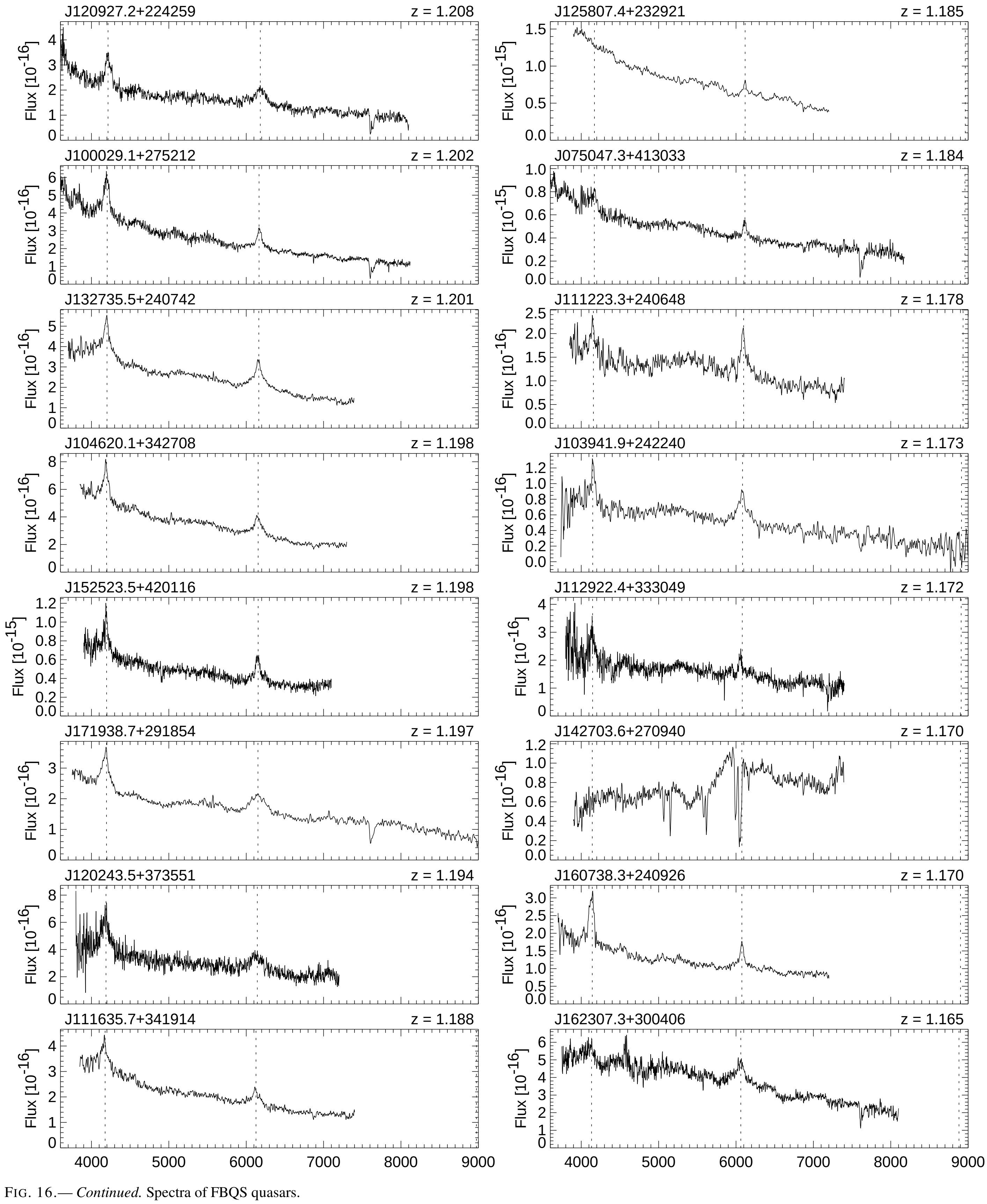


FIG. 16.— *Continued.* Spectra of FBQS quasars.

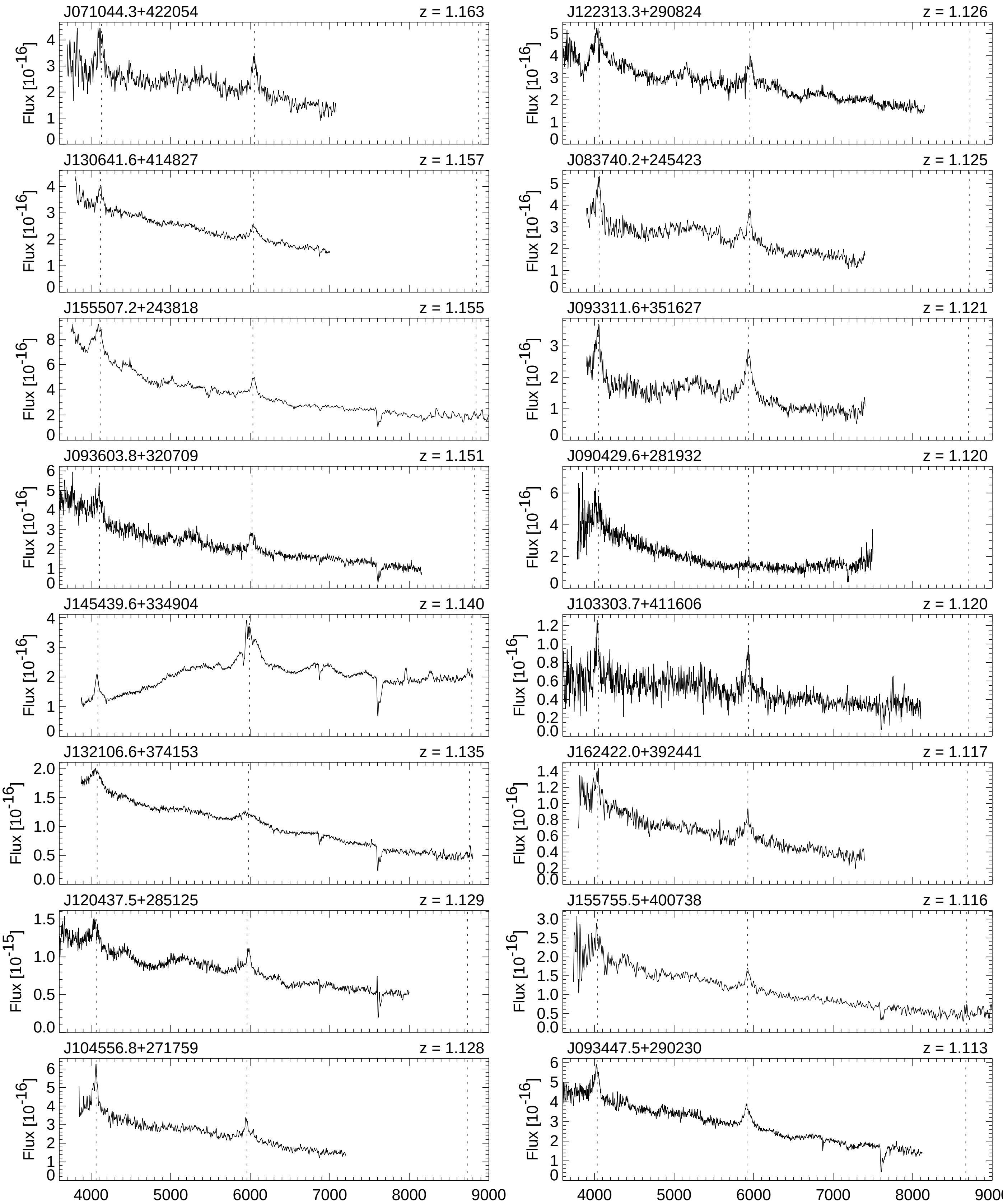


FIG. 16.— *Continued.* Spectra of FBQS quasars.

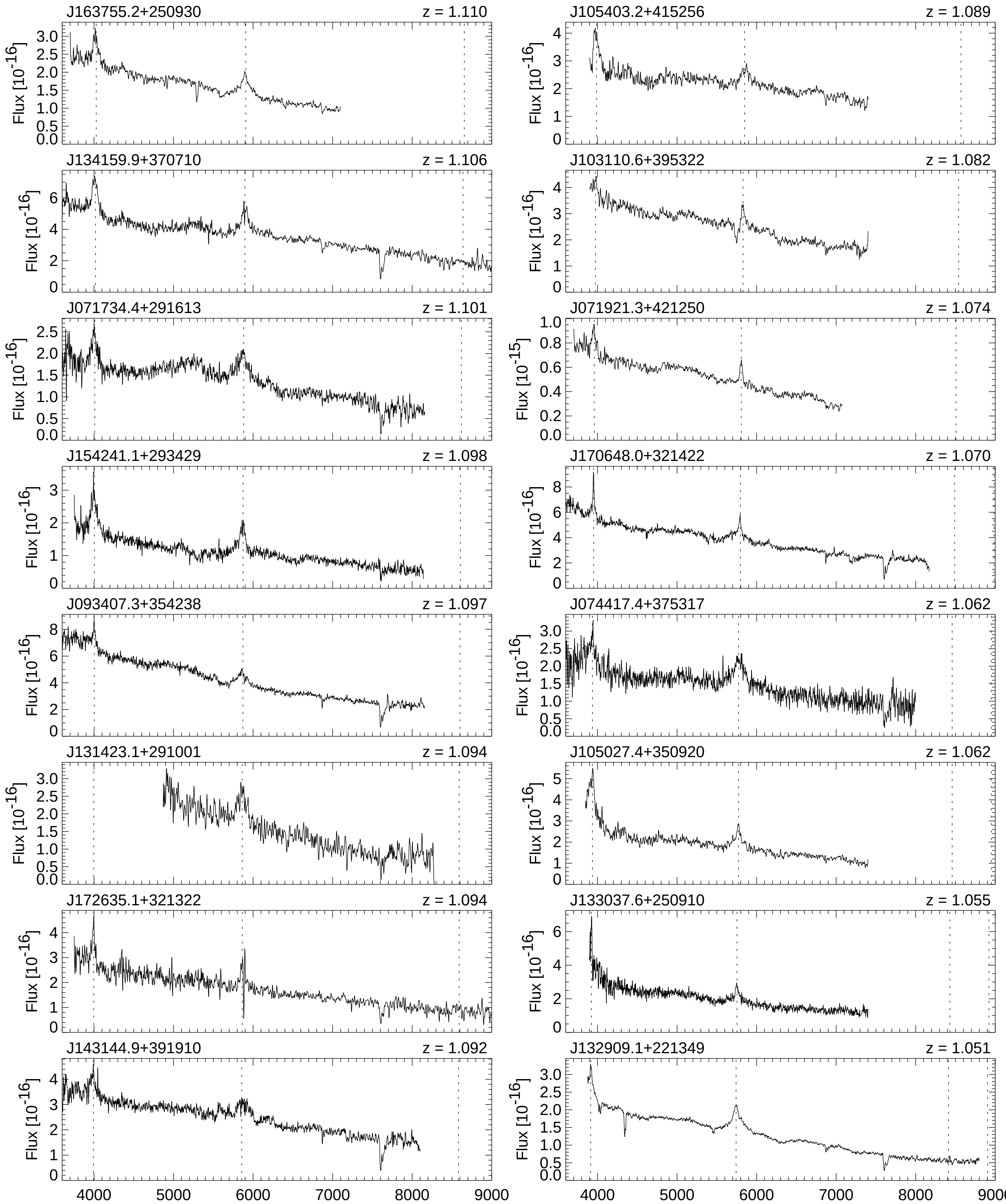


FIG. 16.— *Continued.* Spectra of FBQS quasars.

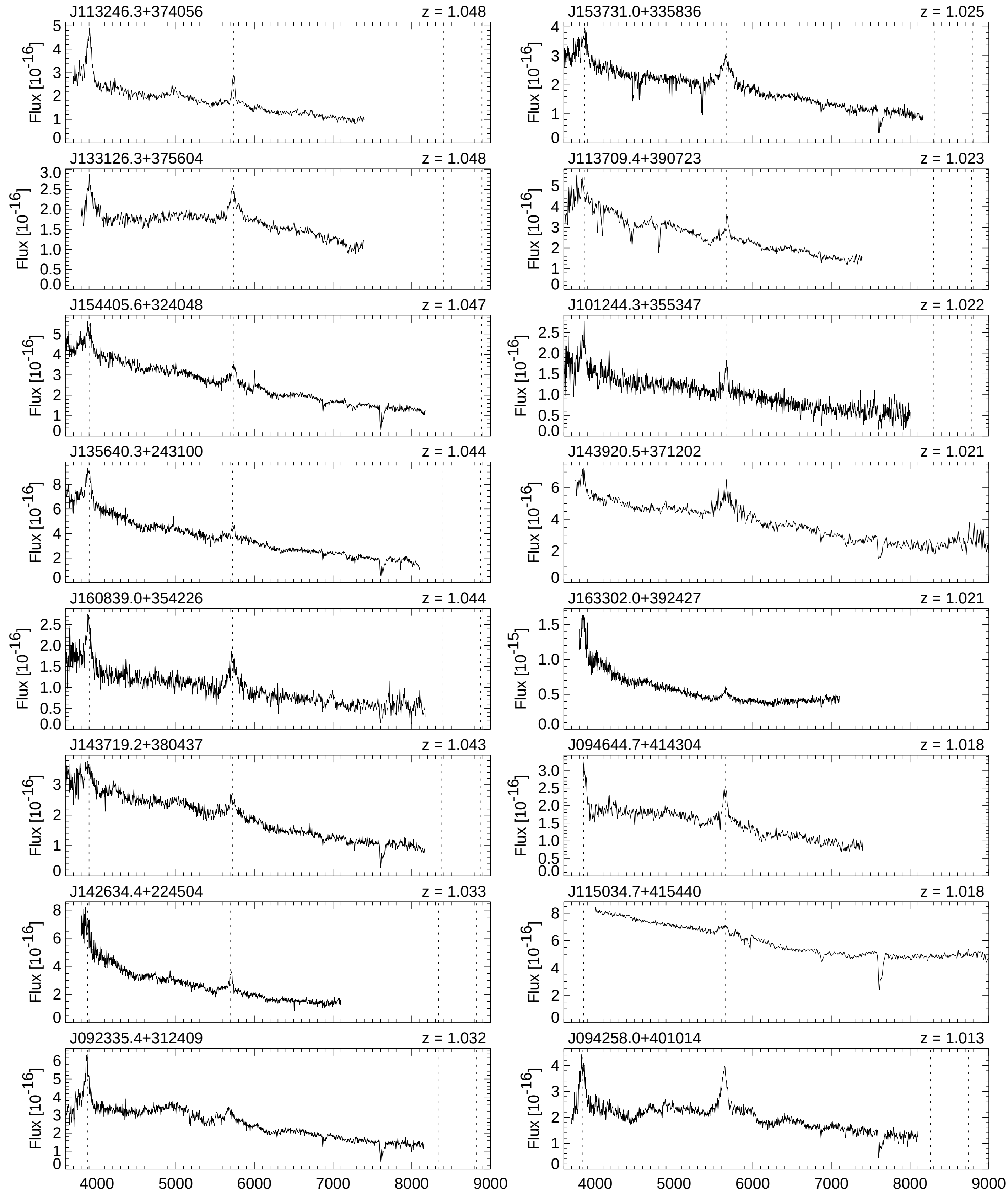


FIG. 16.— *Continued.* Spectra of FBQS quasars.

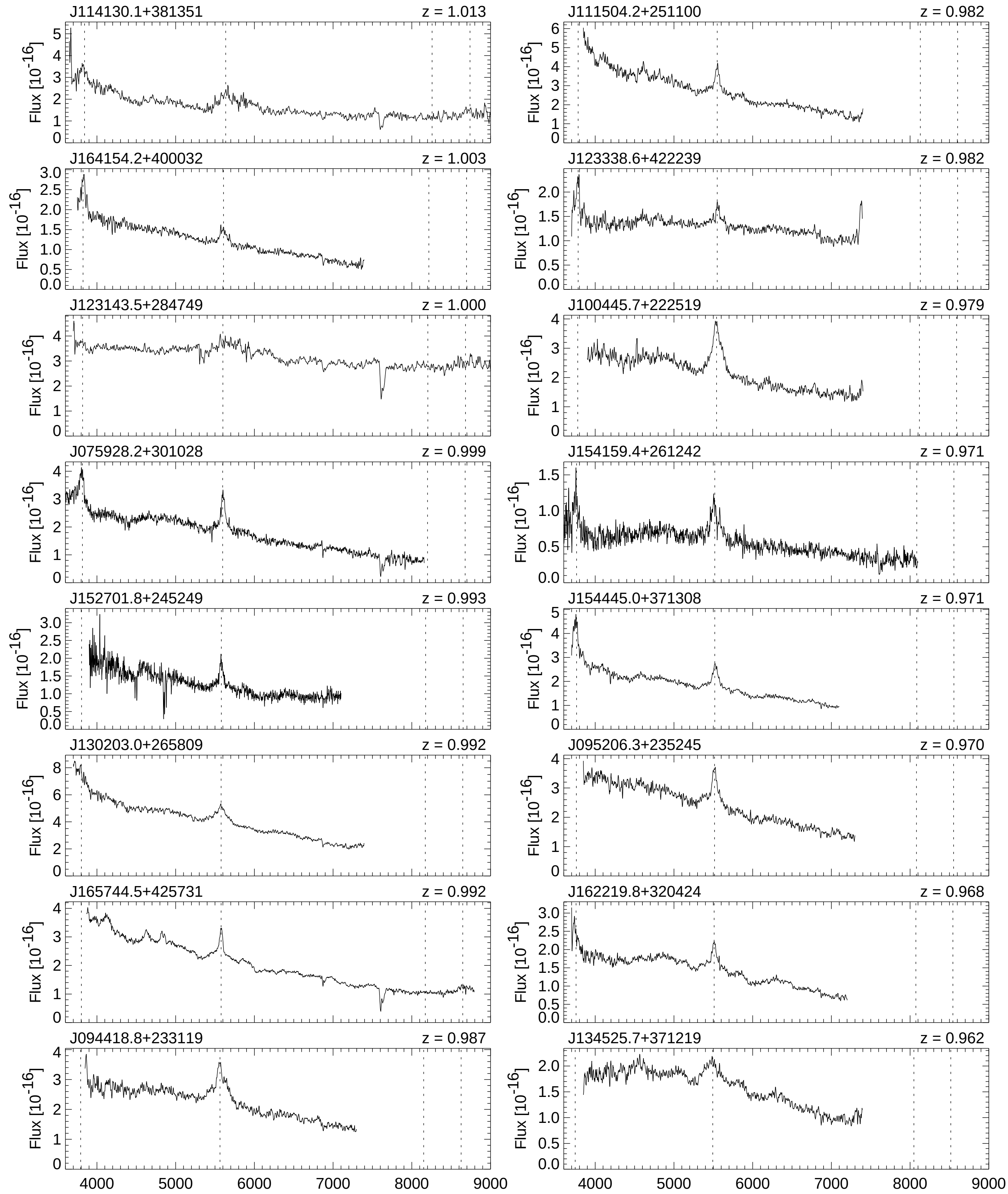


FIG. 16.— *Continued.* Spectra of FBQS quasars.

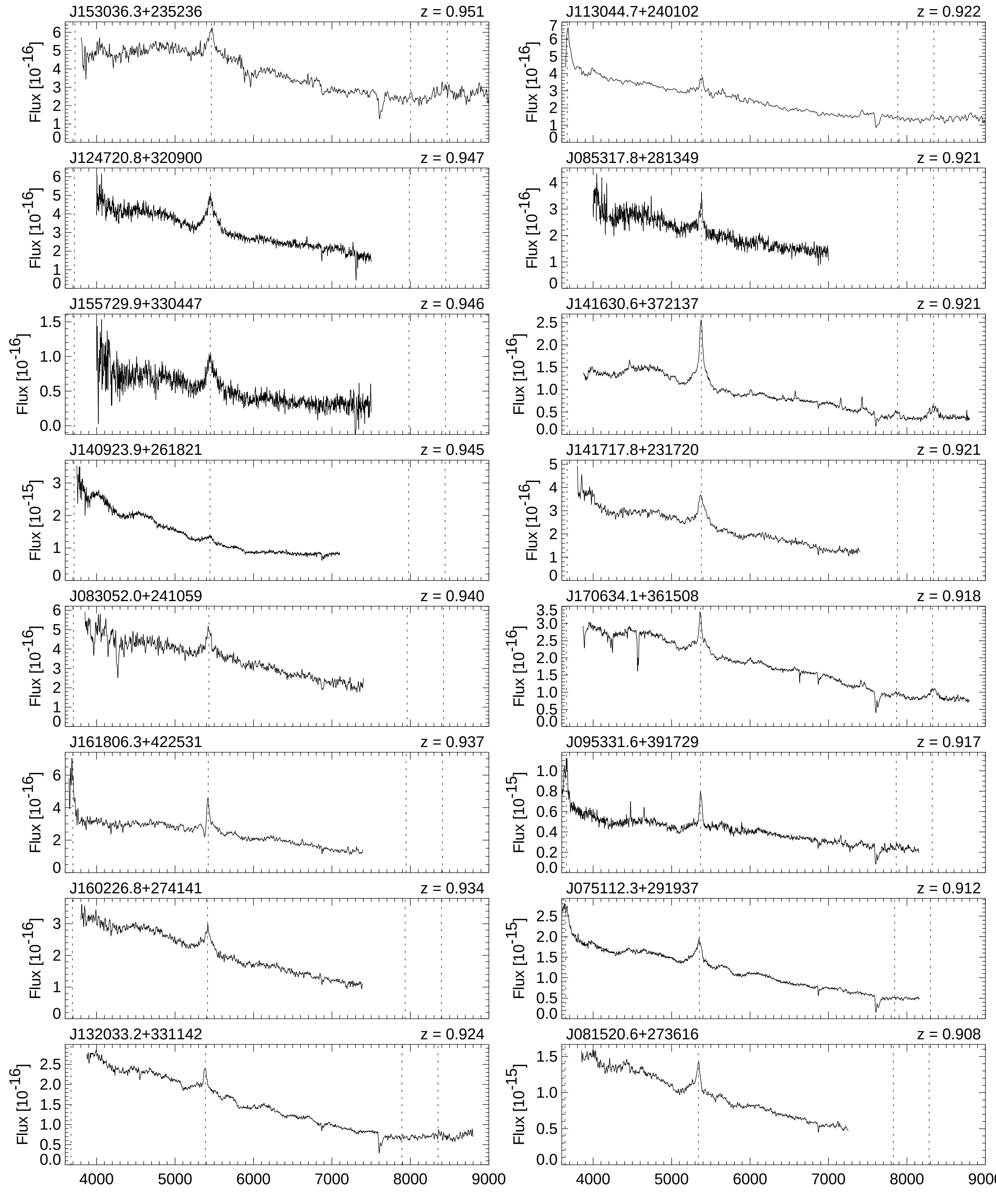


FIG. 16.— *Continued.* Spectra of FBQS quasars.

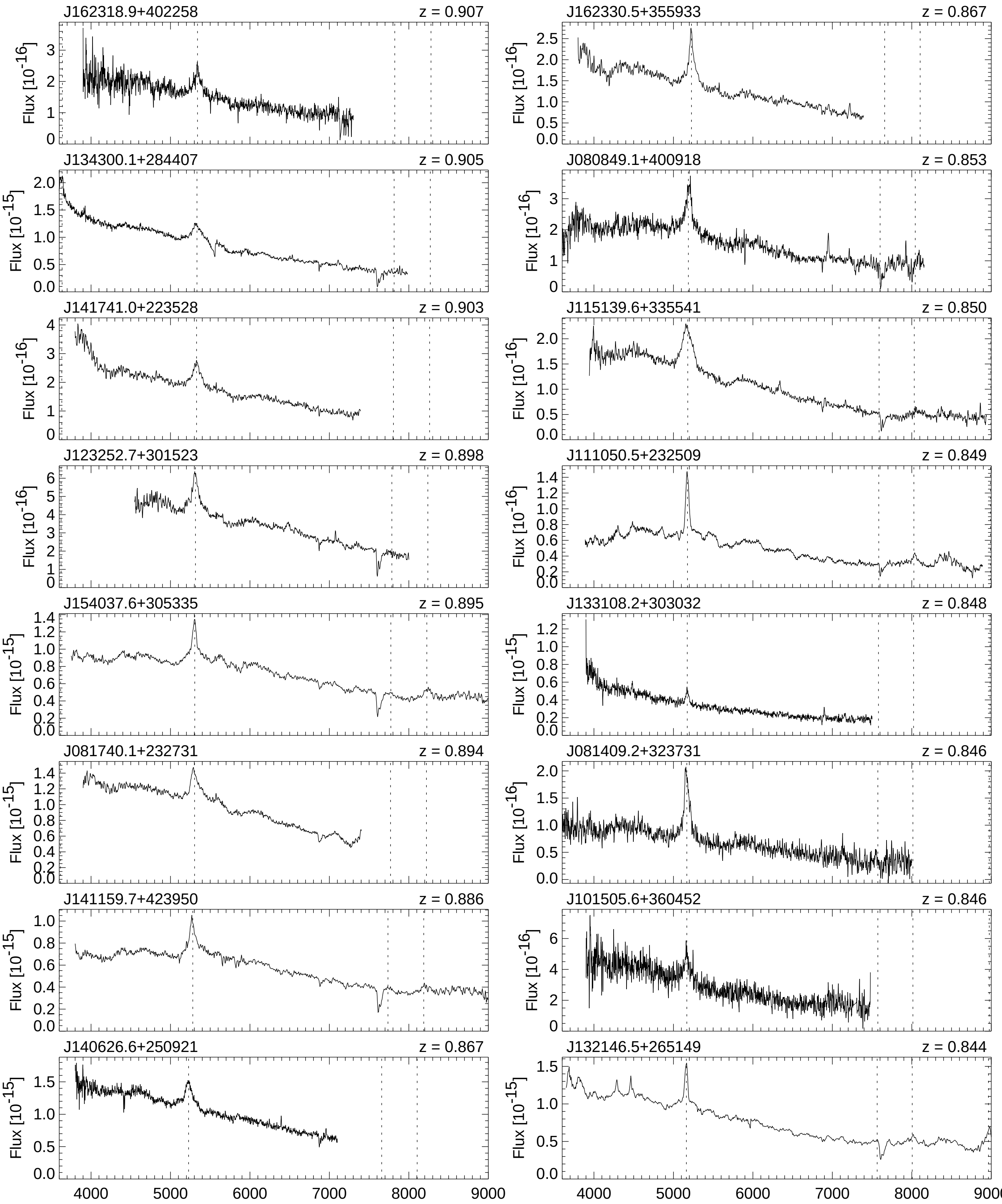


FIG. 16.— *Continued.* Spectra of FBQS quasars.

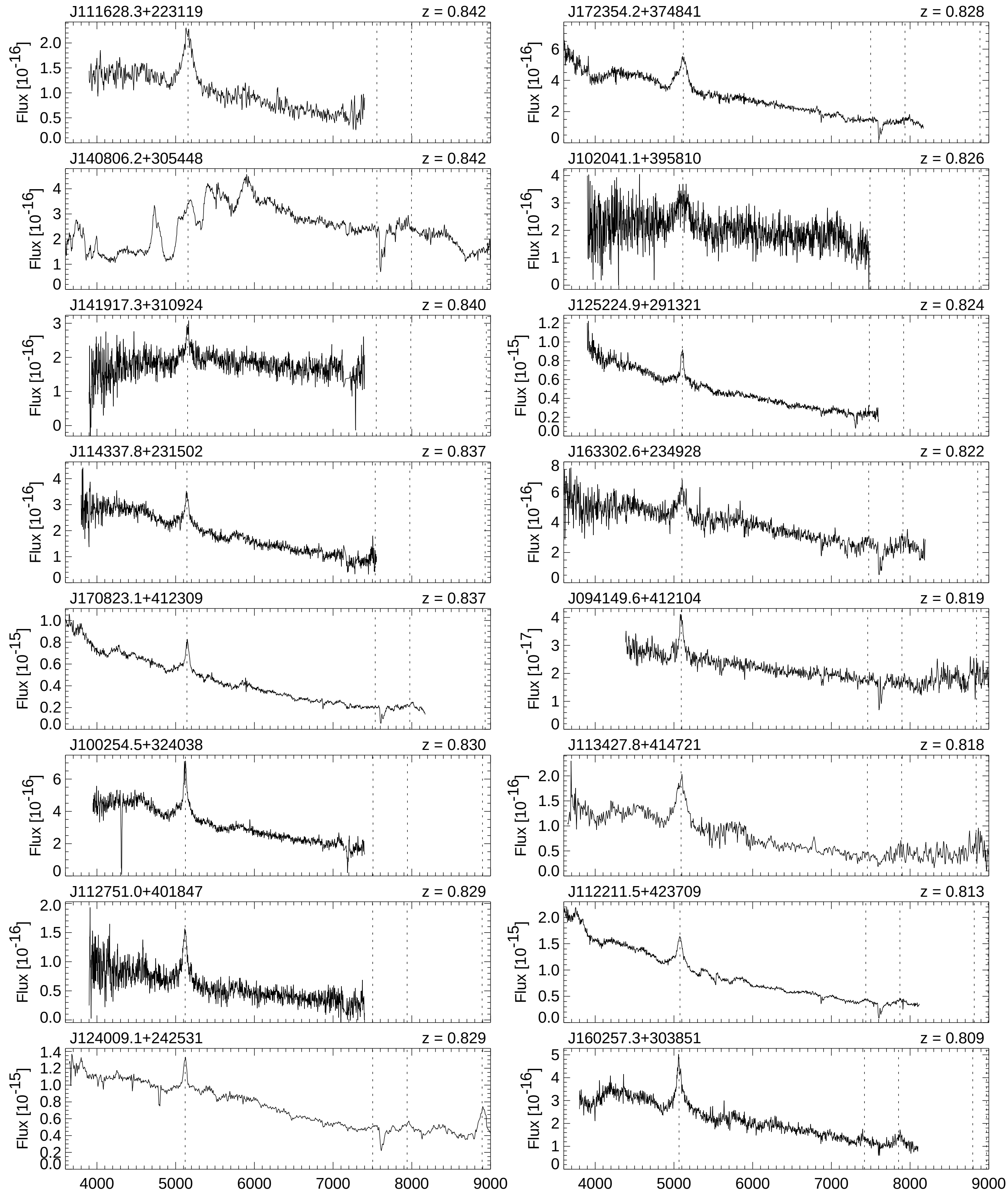


FIG. 16.— *Continued.* Spectra of FBQS quasars.

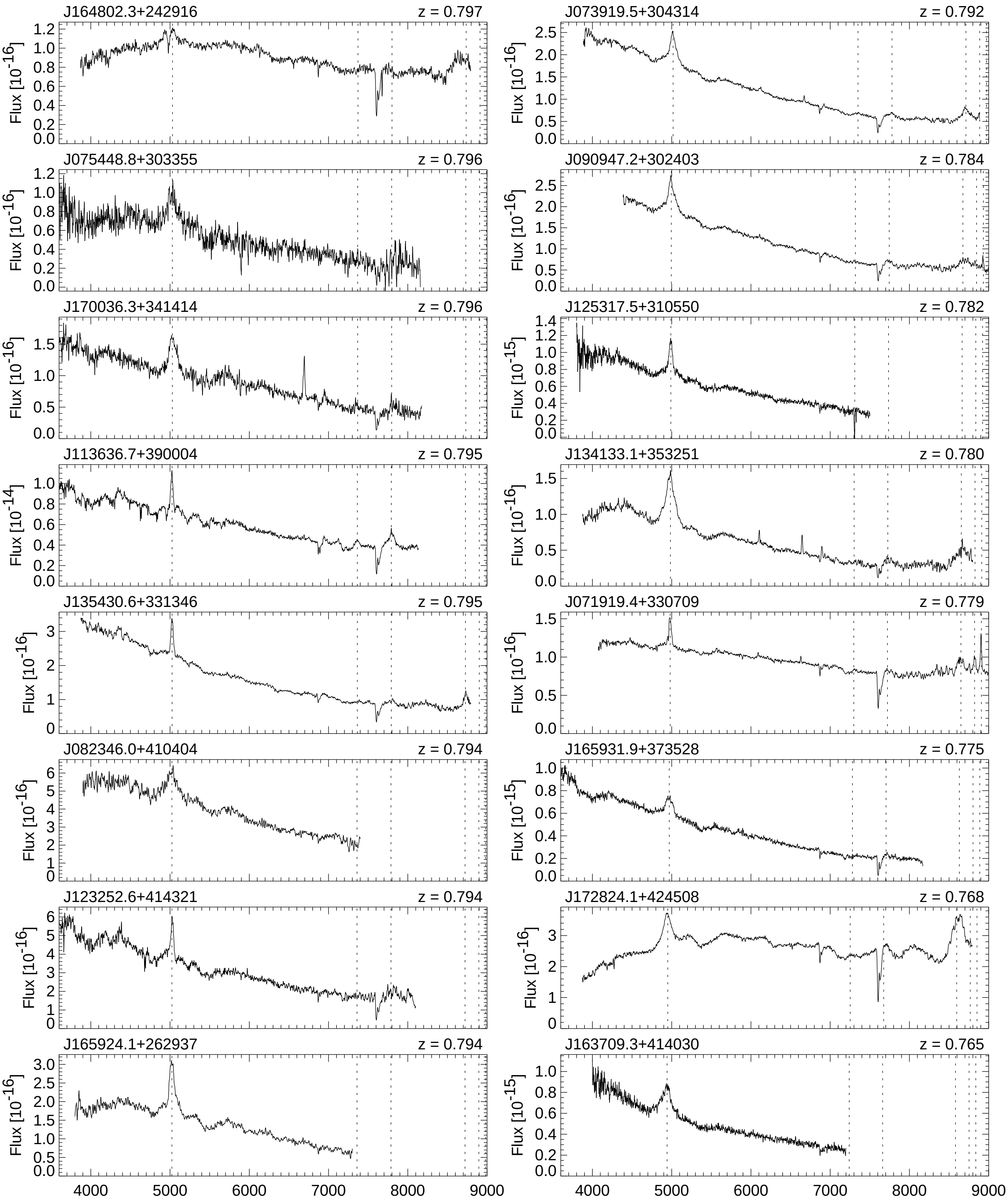


FIG. 16.— *Continued.* Spectra of FBQS quasars.

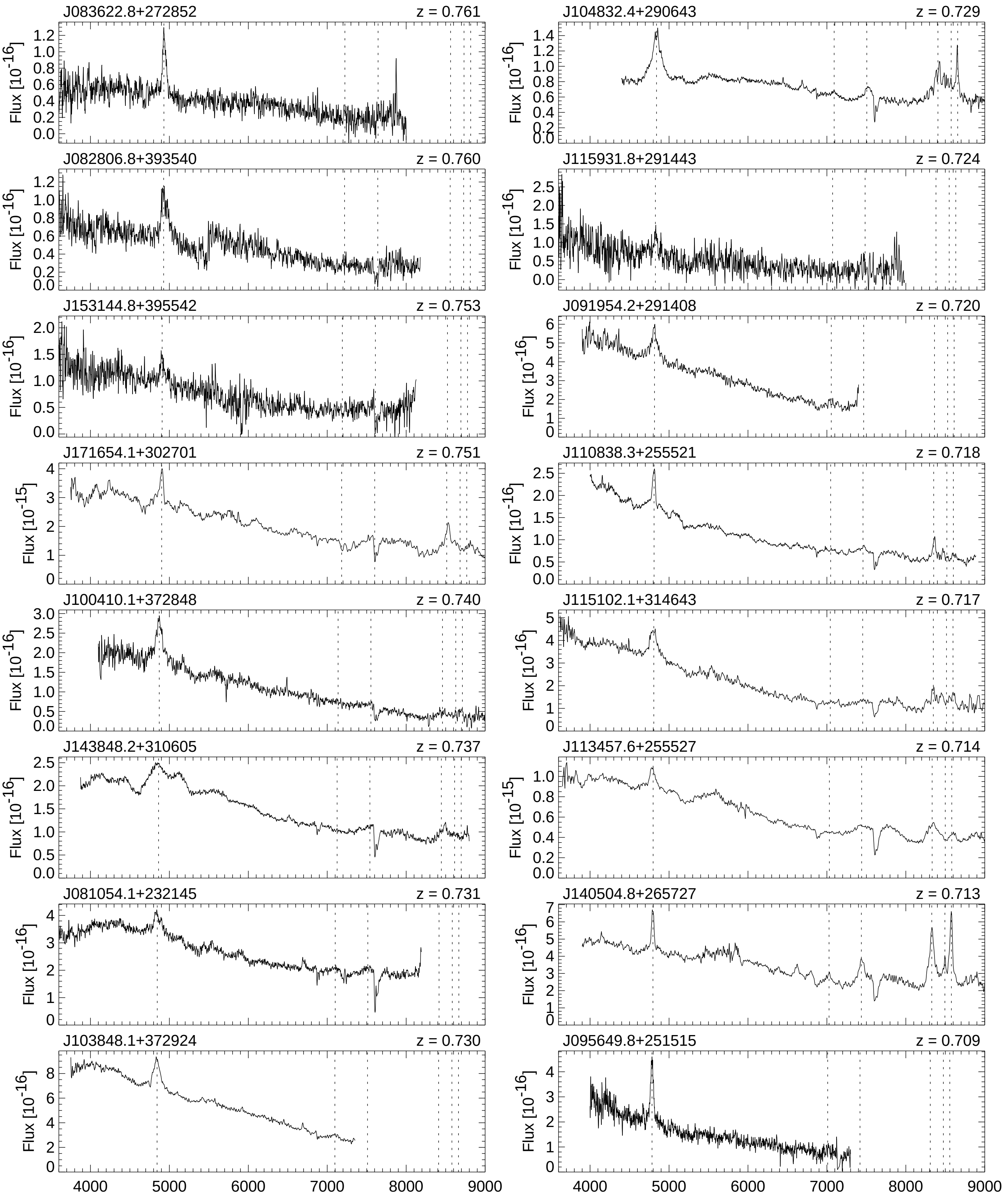


FIG. 16.— *Continued.* Spectra of FBQS quasars.

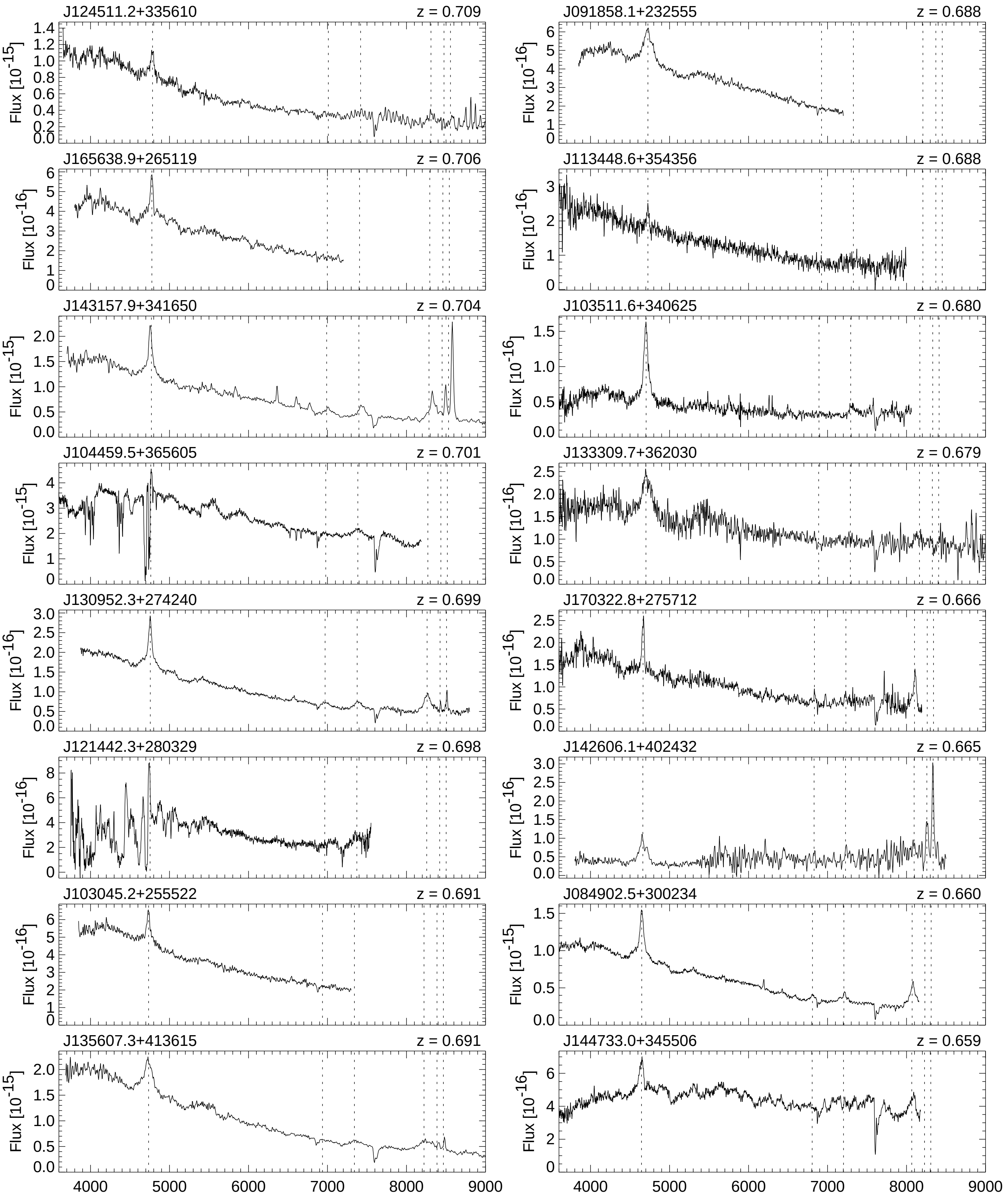


FIG. 16.— *Continued.* Spectra of FBQS quasars.

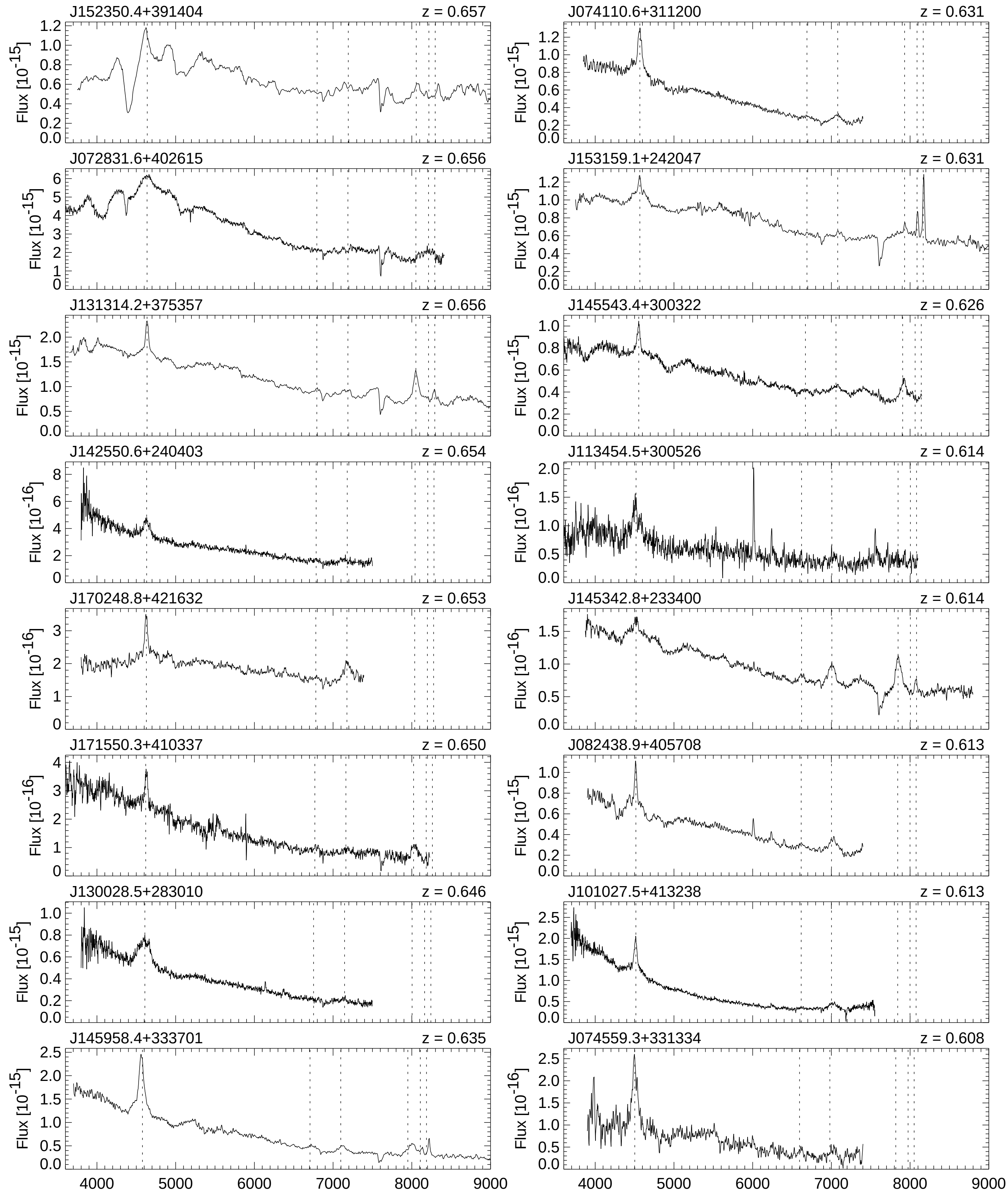


FIG. 16.— *Continued.* Spectra of FBQS quasars.

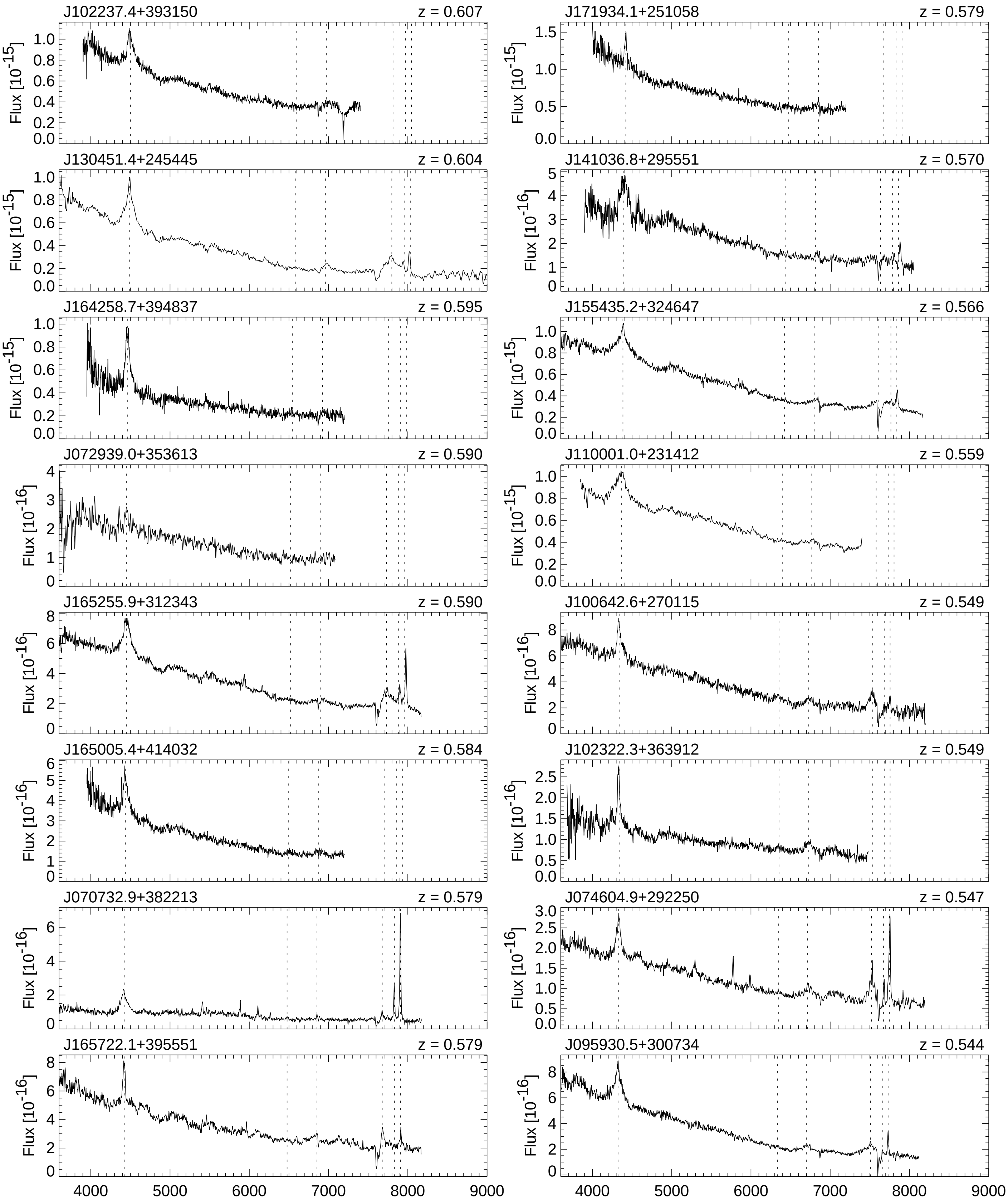


FIG. 16.— *Continued.* Spectra of FBQS quasars.

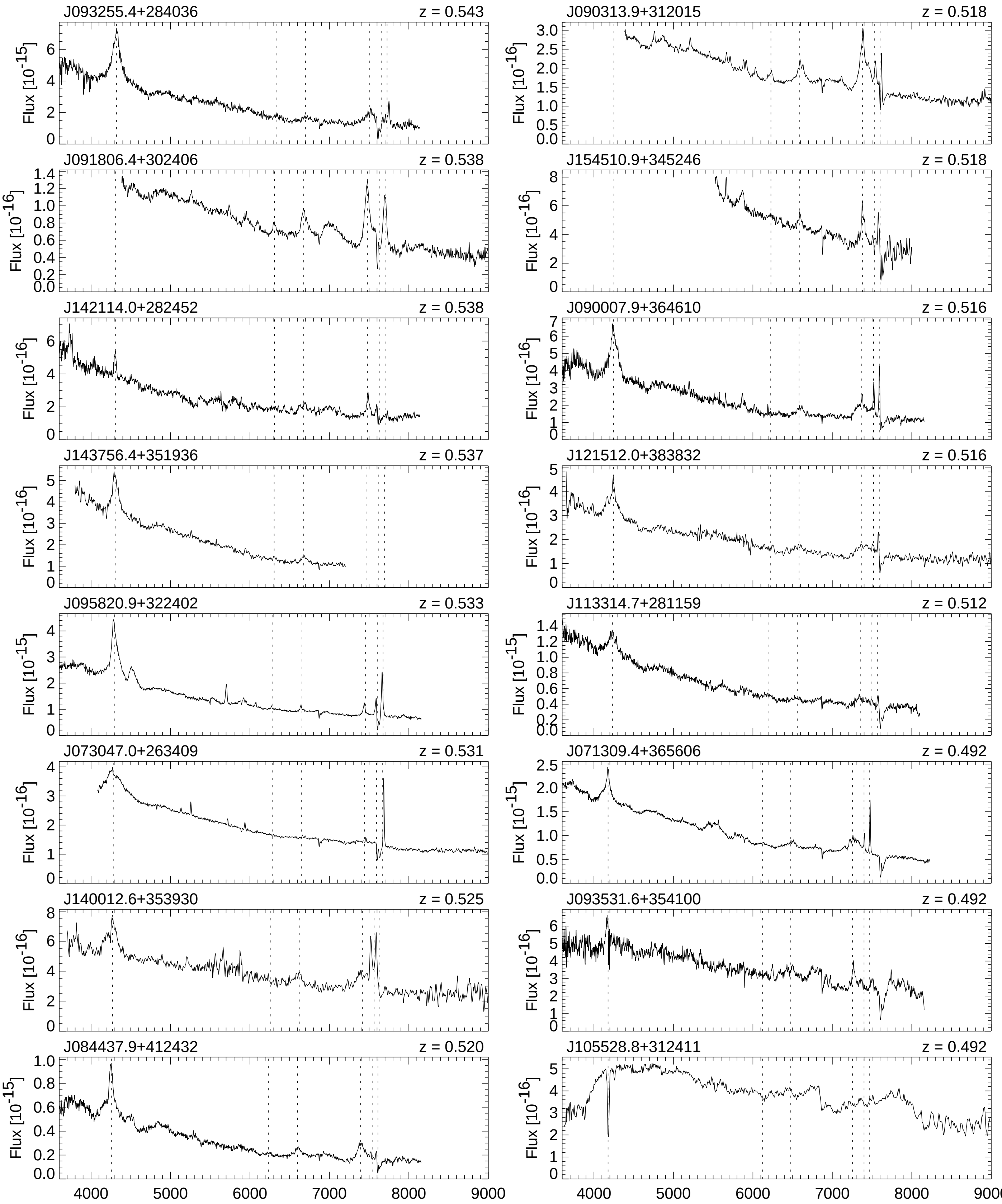


FIG. 16.— *Continued.* Spectra of FBQS quasars.

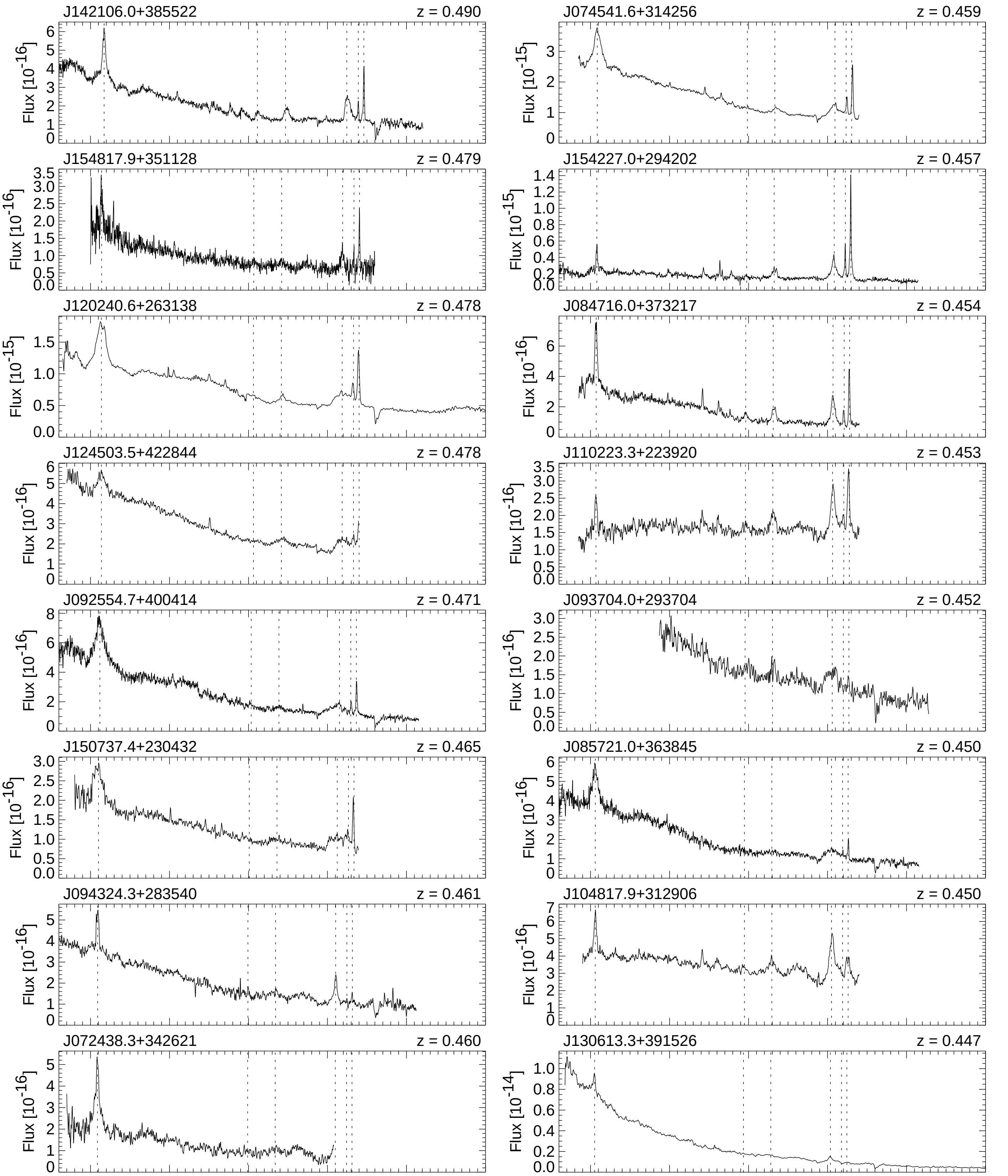


FIG. 16.— *Continued.* Spectra of FBQS quasars.

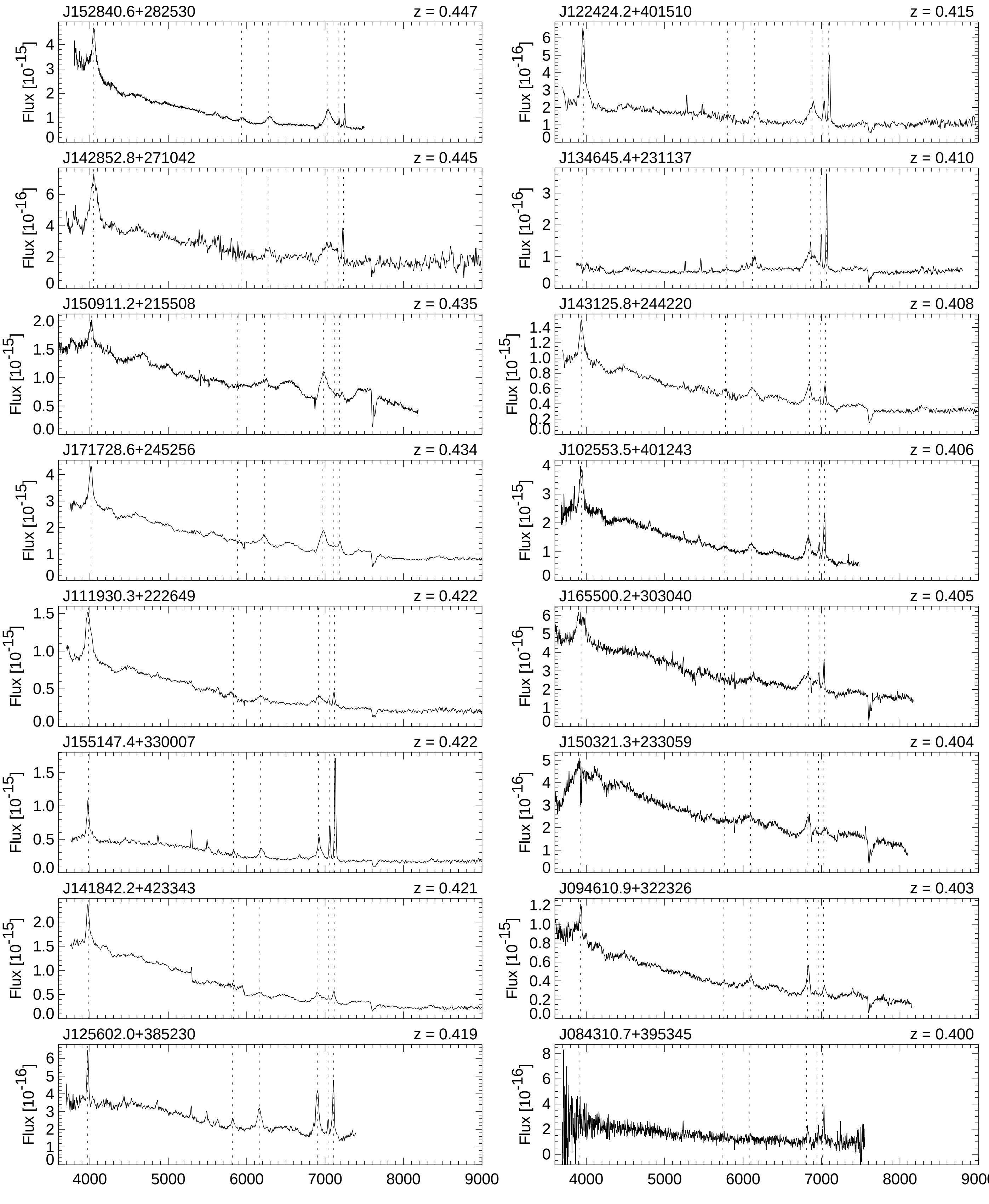


FIG. 16.— *Continued.* Spectra of FBQS quasars.

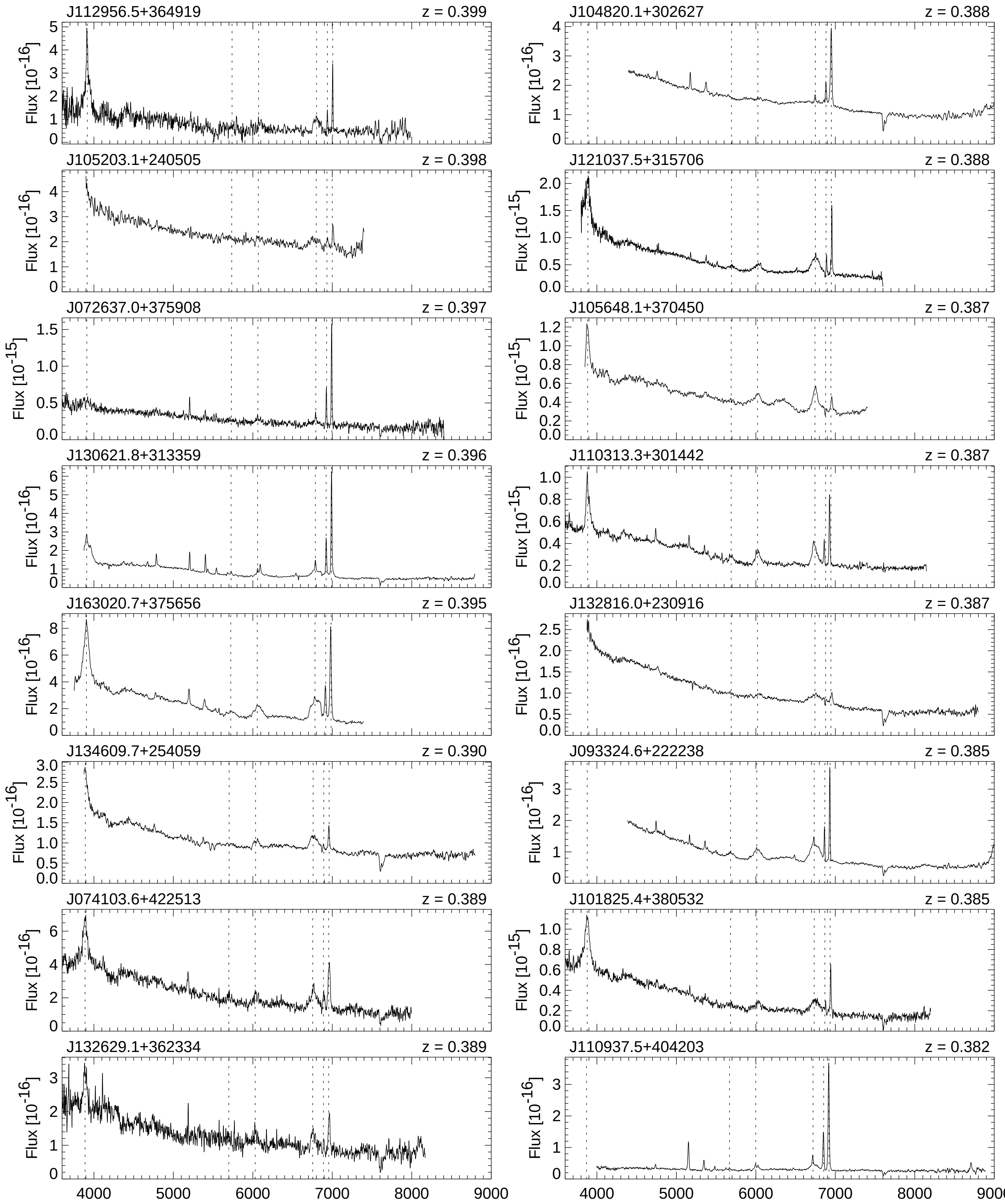


FIG. 16.— *Continued.* Spectra of FBQS quasars.

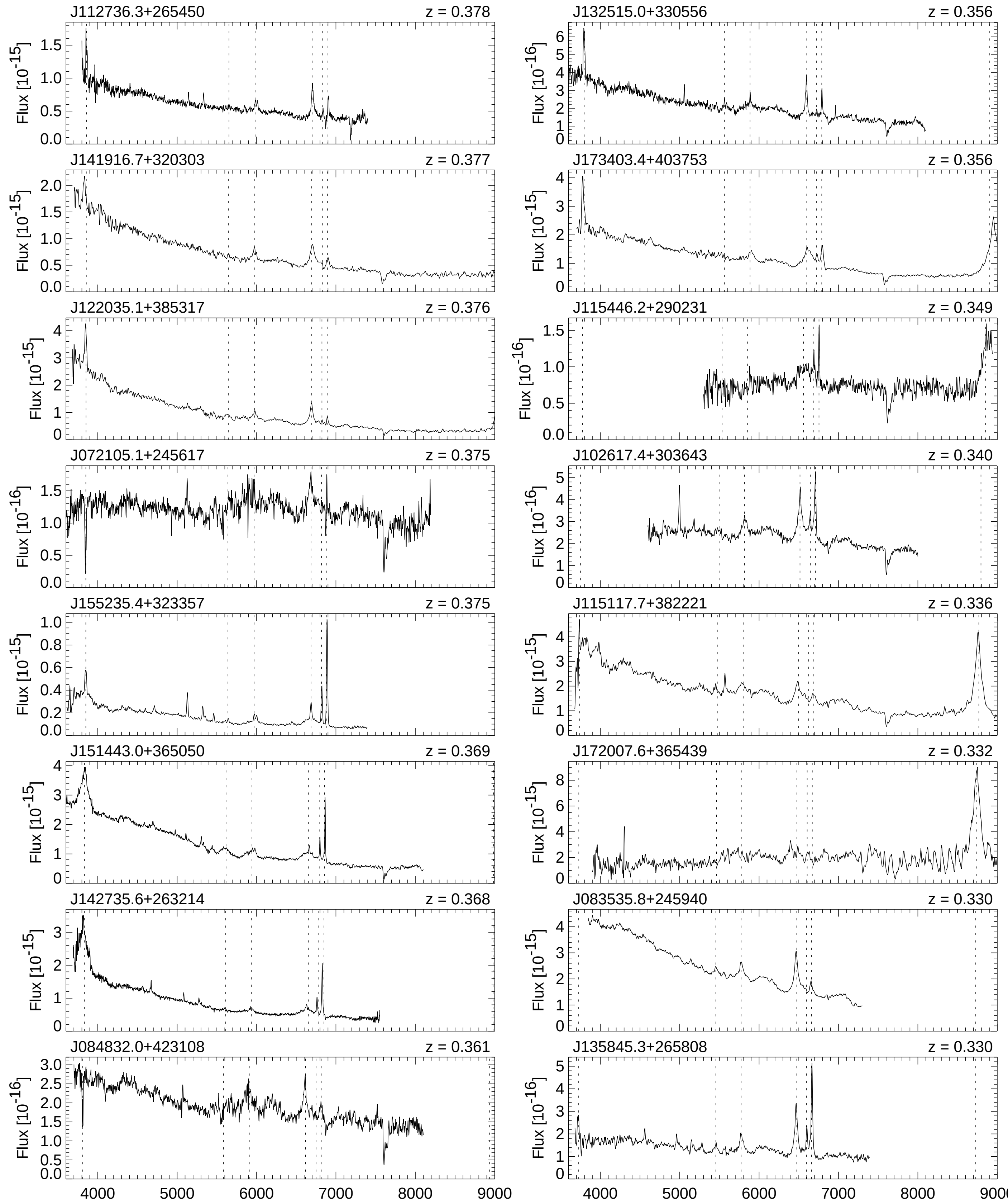


FIG. 16.— *Continued.* Spectra of FBQS quasars.

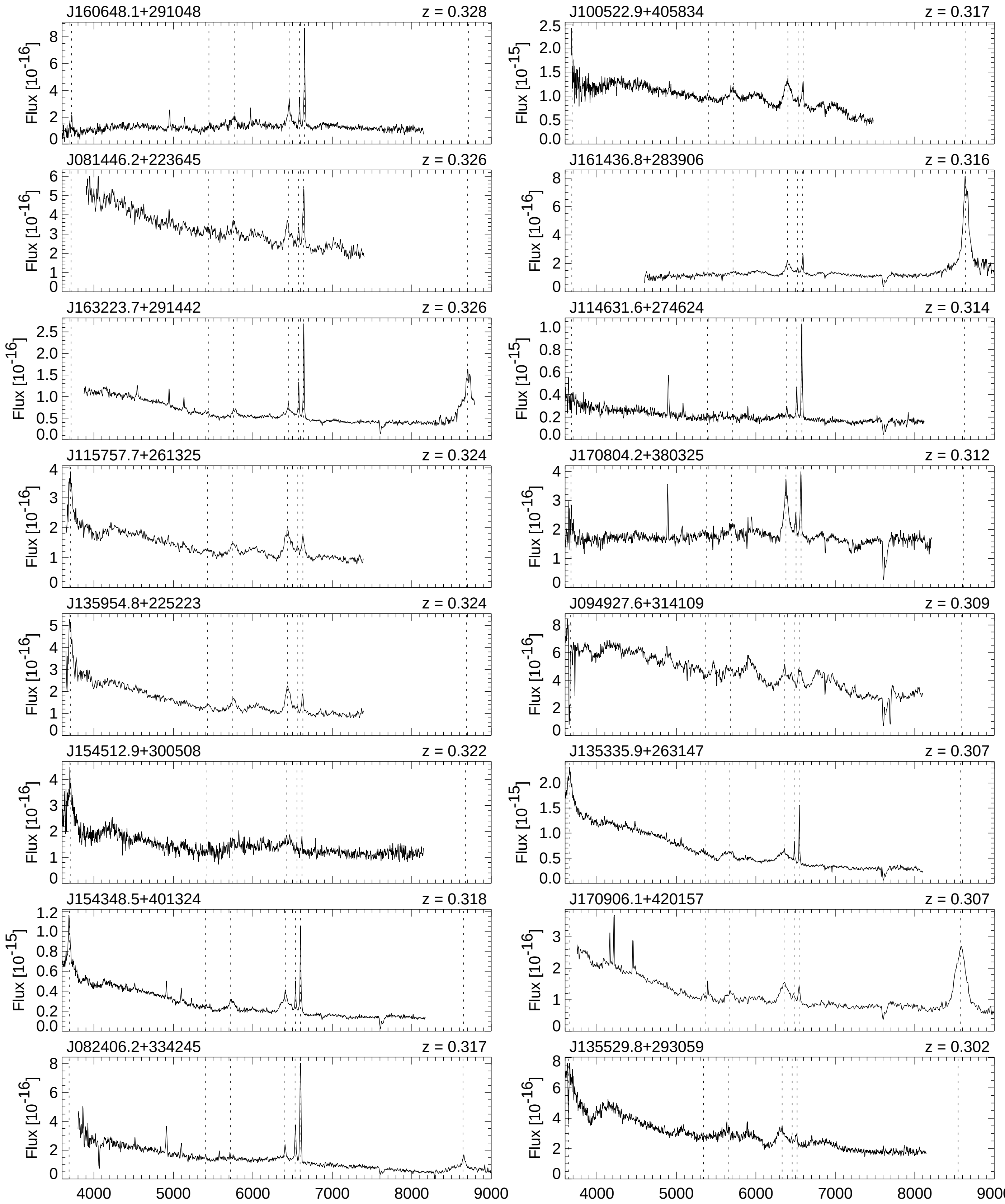


FIG. 16.— *Continued.* Spectra of FBQS quasars.

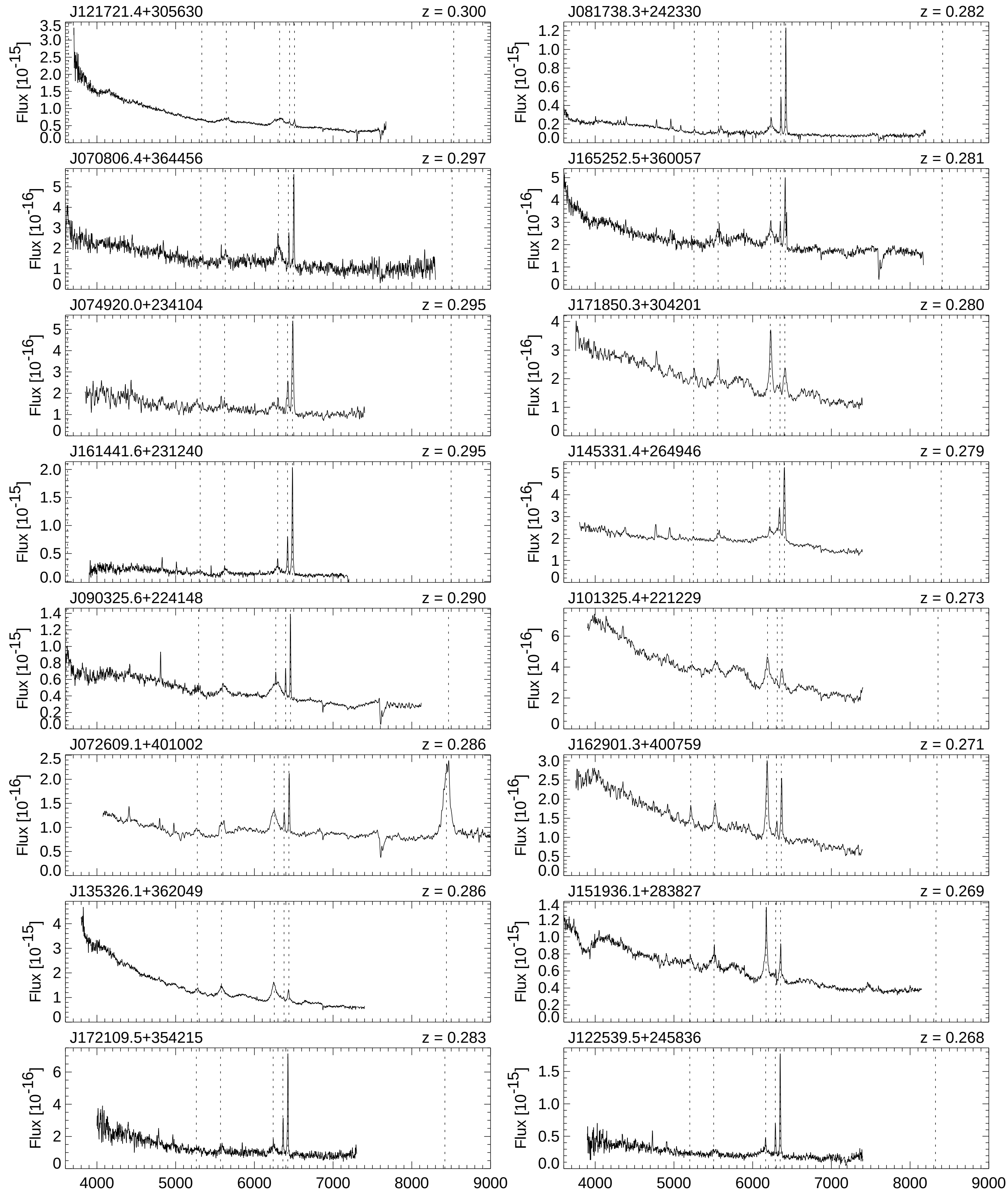


FIG. 16.— *Continued.* Spectra of FBQS quasars.

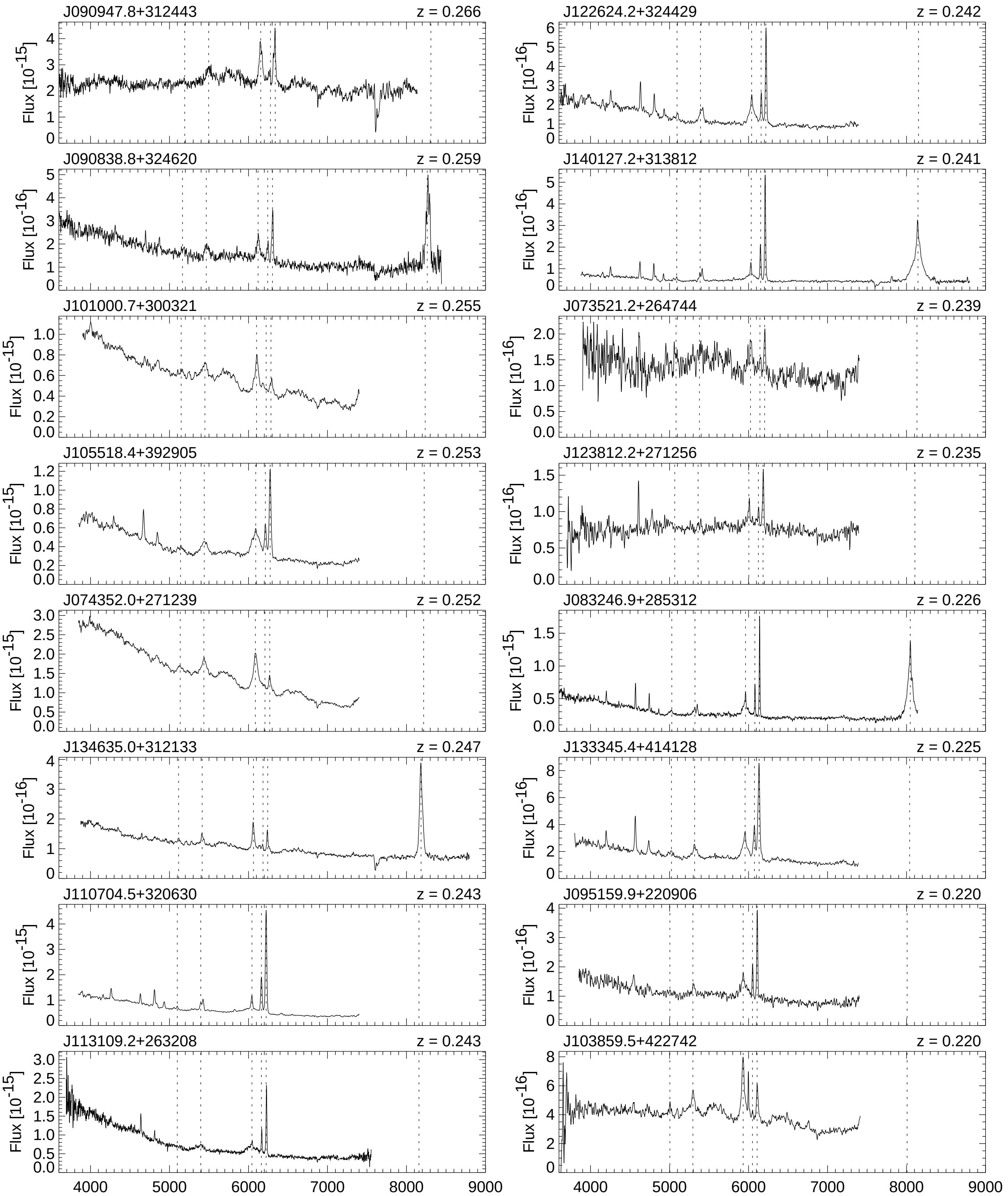


FIG. 16.— *Continued.* Spectra of FBQS quasars.

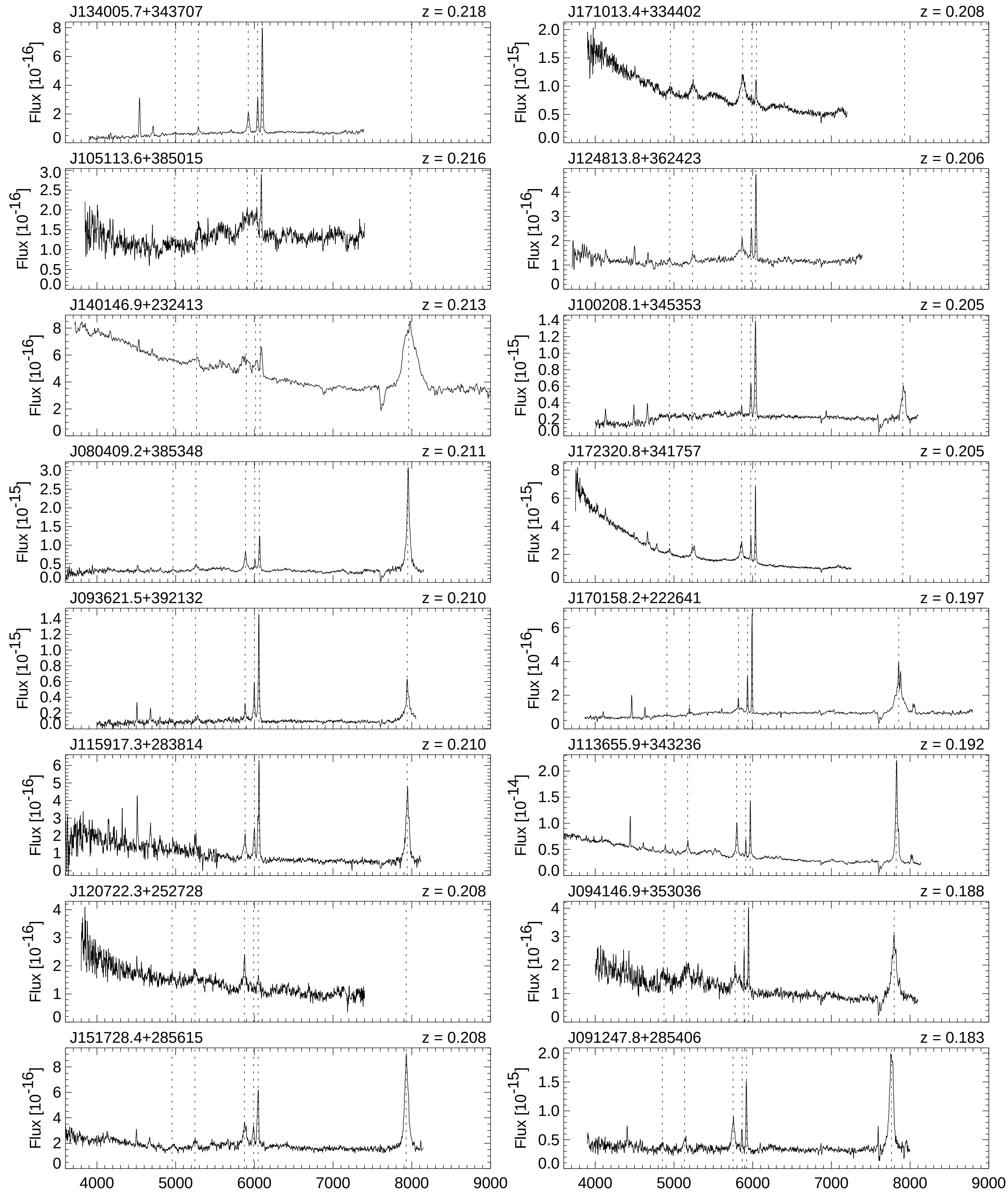


FIG. 16.— *Continued.* Spectra of FBQS quasars.

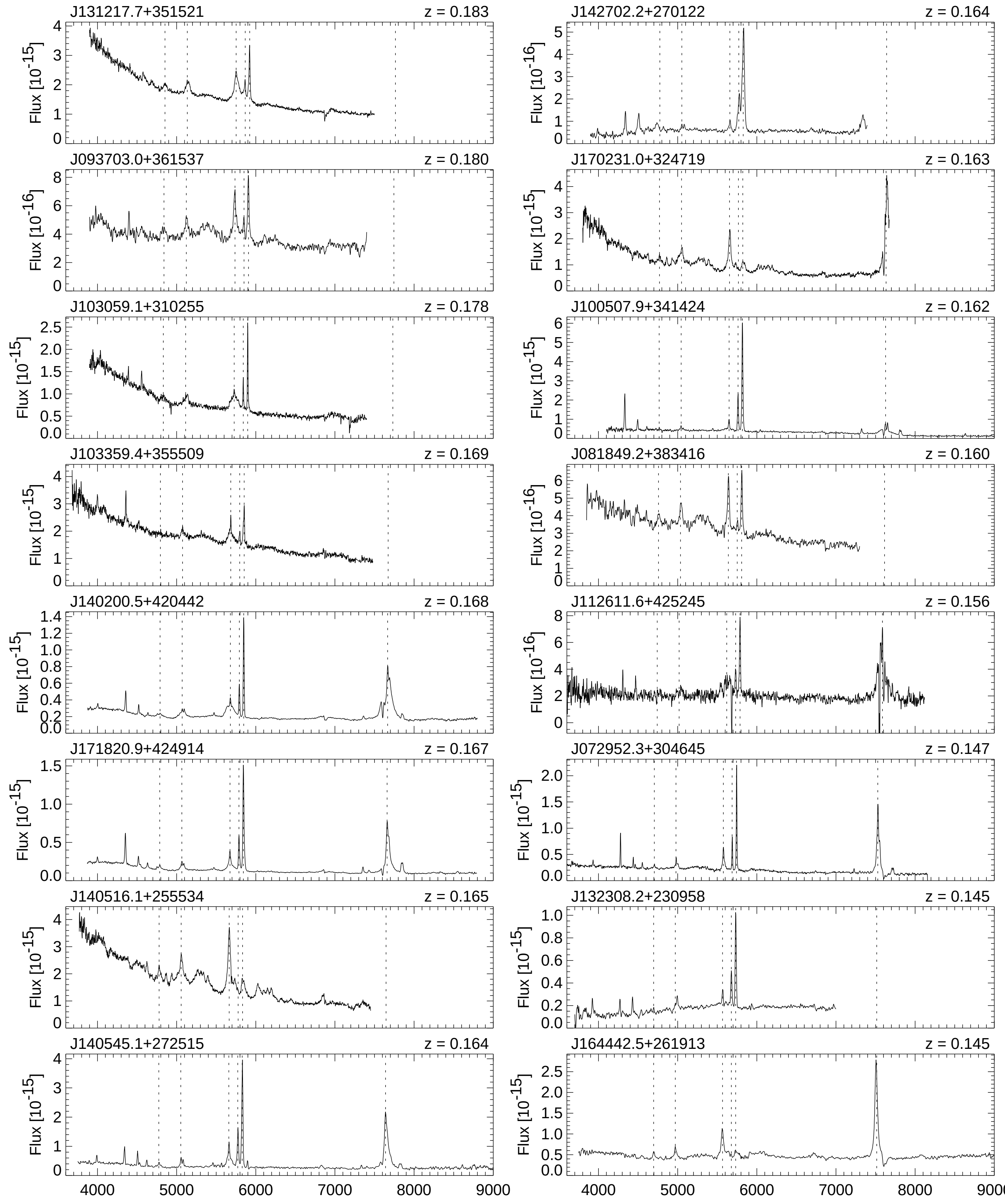


FIG. 16.— *Continued.* Spectra of FBQS quasars.

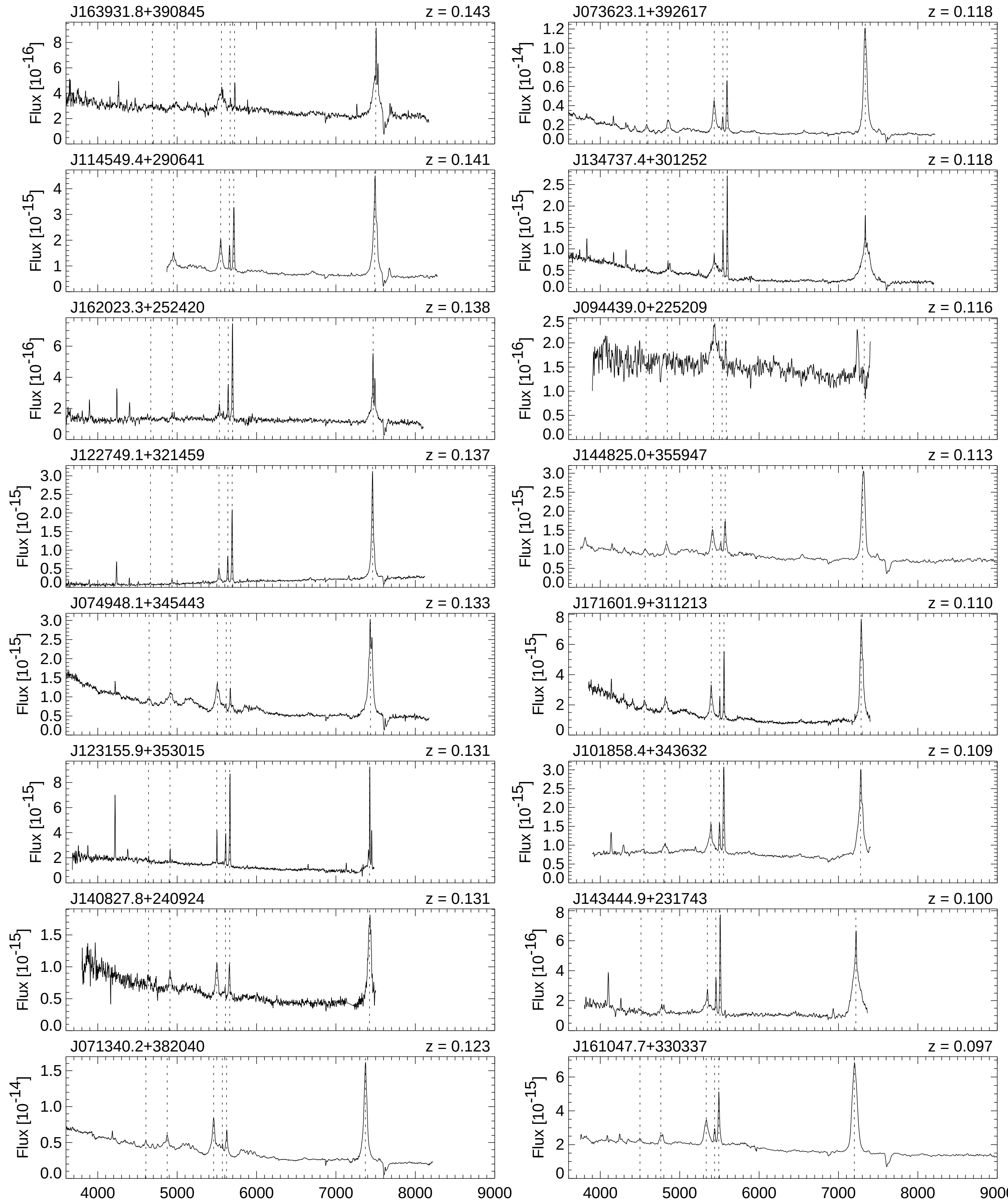


FIG. 16.— *Continued.* Spectra of FBQS quasars.

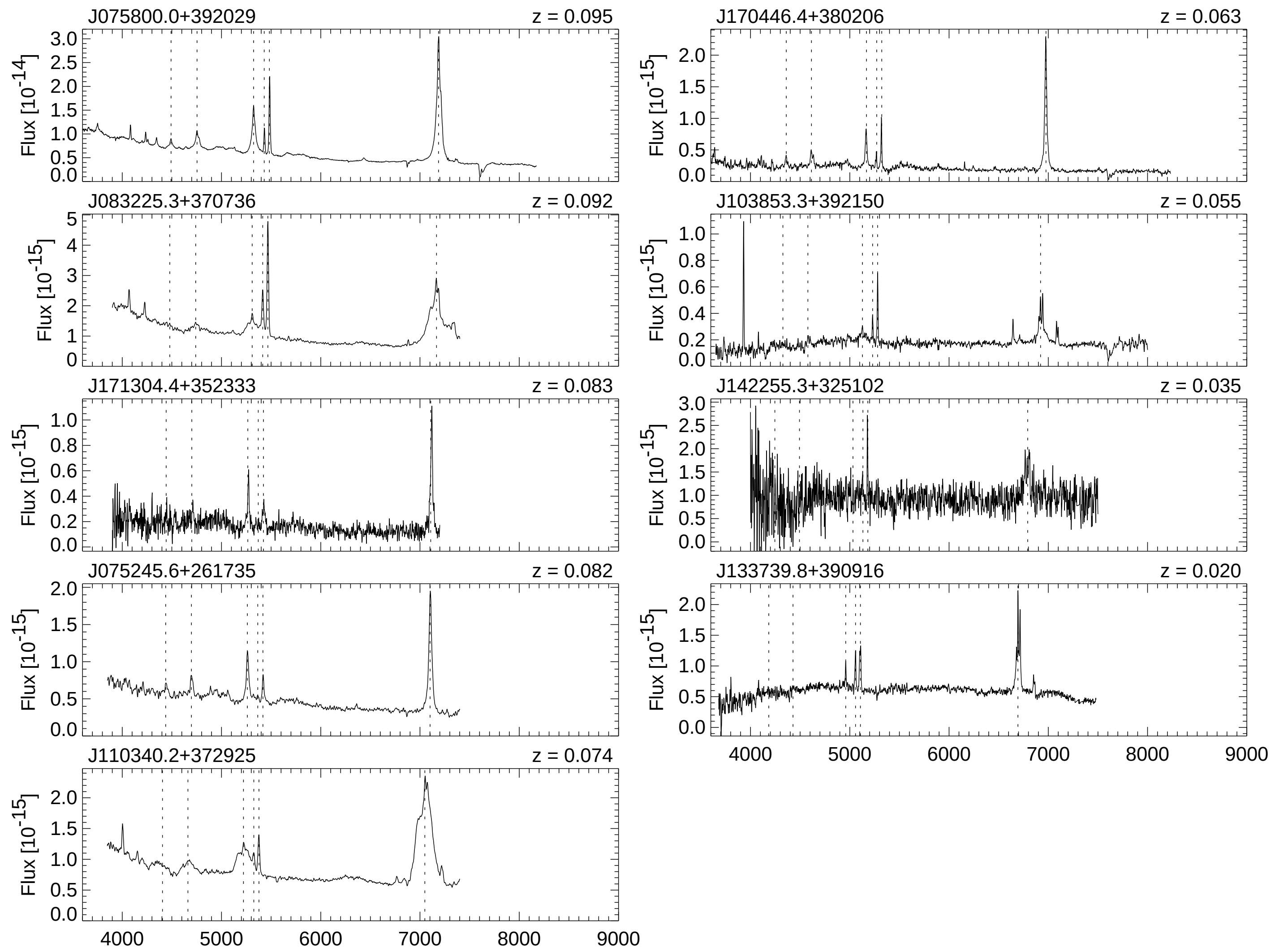


FIG. 16.— *Continued.* Spectra of FBQS quasars.